Message

From: D'Ann Brown-Janowiak [djanowiak@thoracic.org]
Sent: 4/24/2023 7:51:26 PM
To: Enobakhare, Rosemary [Enobakhare.Rosemary@epa.gov]; Cortez Russell, Loni [Russell.Loni@epa.gov]; Jakob, Avivah [Jakob.Avivah@epa.gov]; Lance, Kathleen [Lance.Kathleen@epa.gov]; Dickerson, Aaron [dickerson.aaron@epa.gov]; Michalos, Maria [Michalos.Maria@epa.gov]; Carroll, Timothy [Carroll.Timothy@epa.gov]; Bascomb, Desiree [Bascomb.Desiree@epa.gov]; Flom, Hannah [Flom.Hannah@epa.gov]; scheduling [scheduling@epa.gov]; Meza, Michelle [Meza.Michelle@epa.gov]; Carroll, Timothy [Carroll.Timothy@epa.gov]; Brann, Khanya (she/her/hers) [Brann.Khanya@epa.gov]; Smith, Grace Y. (she/her/hers) [Smith.Grace.Y@epa.gov]
CC: Andrew Halayko [andrew.halayko@umanitoba.ca]; Boyer, Debra [Debra.Boyer@nationwidechildrens.org]; Gary Ewart (DC) [gewart@thoracic.org]; Nicola Black [nblack@thoracic.org]
Subject: RE: Administrator Regan's ATS 2023 Presentation
Attachments: Dr. Downey's- Introduction Keynote Remarks_final_04-24-23.docx; EPA Keynote Title and Questions-4-24-23.docx

Good Afternoon,

Please see Dr. Greg Downey's introduction and the list of questions the ATS team prepared for Administrator Regan. The Keynote title is: The Air That I Breathe: Climate Change and Health: A Conversation With EPA Administrator Michael Regan.

International Conference Committee Chairs, Drs. Halayko and Boyer (cc'd) are happy to answer any questions.

Thank you,

D'Ann

From: Smith, Grace Y. (she/her/hers) <Smith.Grace.Y@epa.gov>
Sent: Monday, April 17, 2023 10:10 AM
To: D'Ann Brown-Janowiak <djanowiak@thoracic.org>; Enobakhare, Rosemary <Enobakhare.Rosemary@epa.gov>; Cortez Russell, Loni <Russell.Loni@epa.gov>; Jakob, Avivah <Jakob.Avivah@epa.gov>; Lance, Kathleen <Lance.Kathleen@epa.gov>; Dickerson, Aaron <dickerson.aaron@epa.gov>; Michalos, Maria <Michalos.Maria@epa.gov>; Carroll, Timothy <Carroll.Timothy@epa.gov>; Bascomb, Desiree <Bascomb.Desiree@epa.gov>; Flom, Hannah <Flom.Hannah@epa.gov>; scheduling <scheduling@epa.gov>; Meza, Michelle <Meza.Michelle@epa.gov>; Carroll, Timothy <Carroll.Timothy@epa.gov>; Brann, Khanya (she/her/hers) <Brann.Khanya@epa.gov>
Cc: Andrew Halayko <andrew.halayko@umanitoba.ca>; Boyer, Debra <Debra.Boyer@nationwidechildrens.org>; Gary Ewart (DC) <gewart@thoracic.org>; Nicola Black <nblack@thoracic.org>
Subject: RE: Administrator Regan's ATS 2023 Presentation

Thank you so much! Could you please remind me if this will be open or closed press?

Tim Carroll, CCed, is the best contact for any press concerns and Khanya and Hannah, CCed, are the best points of contact for any media concerns. Thank you all!

Thanks,
Grace Smith | she.her
Manager of Partnerships and Special Projects
Environmental Protection Agency
[email] smith.grace.y@epa.gov
[phone] (771) 200-8393

From: D'Ann Brown-Janowiak <djanowiak@thoracic.org>
Sent: Friday, April 14, 2023 7:41 AM
To: Enobakhare, Rosemary <Enobakhare.Rosemary@epa.gov>; Cortez Russell, Loni <Russell.Loni@epa.gov>; Jakob, Avivah <Jakob.Avivah@epa.gov>; Smith, Grace Y. (she/her/hers) <Smith.Grace.Y@epa.gov>; Lance, Kathleen <Lance.Kathleen@epa.gov>; Dickerson, Aaron <dickerson.aaron@epa.gov>; Michalos, Maria <Michalos.Maria@epa.gov>; Carroll, Timothy <Carroll.Timothy@epa.gov>; Bascomb, Desiree <Bascomb.Desiree@epa.gov>; Flom, Hannah <Flom.Hannah@epa.gov>; scheduling <scheduling@epa.gov>; Meza, Michelle <Meza.Michelle@epa.gov>
Cc: Andrew Halayko <andrew.halayko@umanitoba.ca>; Boyer, Debra <Debra.Boyer@nationwidechildrens.org>; Gary Ewart (DC) <gewart@thoracic.org>; Nicola Black <nblack@thoracic.org>
Subject: Administrator Regan's ATS 2023 Presentation

Good morning,

I hope everyone is well. The ATS team is hard at work preparing questions for Administrator Regan's talks at ATS 2023. We expect to send the questions and title for your review early next week and appreciate your patience. We can confirm that ATS President Dr. Greg Downey will facilitate the fireside chat. I am also providing a tentative layout of the 45-minute program for your review. Please see below.

Introduction: 3 minutes
Remarks by Administrator Regan: 5-7 minutes
Fireside chat: 30 minutes
Closing remarks and presentation of plaque: 5 minutes

Our marketing and communications team are in the process of developing marketing materials for the Keynote lectures. If possible, we'd like to add Administrator Regan's session to our conference website. Will you be able to provide a headshot and brief bio sketch we can add to our marketing materials? Also, should I give them Khanya Brann's email address if they require additional information? If I recall she is on the press team.

Please do not hesitate to contact me with any questions and/or concerns.

Thank you,

D'Ann

D'Ann Brown-Janowiak
Director, International Conference and Learning Programs
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Introduction Remarks from Dr. Greg Downey

It is my great honor to introduce EPA Administrator Michael S. Regan as our Keynote Speaker. Administrator Regan is a graduate of the North Carolina Agricultural & Technical State University, and earned a master's degree in Public Administration from The George Washington University.

Administrator Regan has an impressive resume and real-world experience related to environmental policy. He is a former EPA staffer and Secretary of the North Carolina Department of Environmental Quality, and in that role, he initiated a successful effort to clean up coal ash waste and led a state-wide plan to address climate change and adopt a clean energy economy. He tackled PFAS pollution in the Cape Fear River and established North Carolina's Environmental Justice and Equity Advisory board to ensure impacted communities had a true voice in environmental protection and clean up.

Michael Regan leads an agency that President Biden has tasked with the incredibly important and difficult job of addressing climate change and environmental injustice in addition to protecting our air, land, and water. ATS members include lung experts and scientists who do research that documents the adverse health effects of exposure to air pollution. Our members are producing science on the human health effects of climate change, often working alongside the EPA and informing policy assessments and documents. We have members who have served on advisory and expert panels in the audience today. We are proud that science conducted by ATS members is used by EPA to shape policy, and we embrace any opportunity to help shape public policy. We have gone to court to preserve EPA's authority under the Clean Air Act to protect the public, and we are proud to be your scientists and advocates!

Based on your record and your vison, the ATS has high expectations for the work you will achieve as EPA Administrator, and we are delighted to be able to chat with you today about science-based policy to protect the environment for everyone, regardless of social and economic status.

The Air That I Breathe: Climate Change and Health:

A Conversation with EPA Administrator Michael Regan

Date/Time: May 22-8:00-8:45 AM

Location: Walter E. Washington Convention Center, West Salon G-I (Street Level)

List of Questions for Keynote Speaker Administrator Regan

1. Previous versions of social cost of greenhouse gas estimates drastically underestimated the impact of climate on health. In part due to efforts led by ATS, health impacts now comprise approximately half of the estimated damage associated with climate change (up from less than 10% of estimated damages). The ATS was proud to play a role in improving the science supporting the health contributions to the social costs of carbon estimates. Will you give us your thoughts on the importance of researchers and policymakers working together to ensure that our best scientific understanding is reflected in agency actions and decision-making?

2. The EPA has recently reviewed and updated the social cost of greenhouse gases which have frequently been referred to as "the most important number you have never heard of." One of President Biden's first executive orders on day one of his presidency was to re-establish the inter-agency working group and review and update the social cost of greenhouse gases with consideration given to recommendations that were made by the National Academies in a 2017 report. These newly adopted estimates for the social cost of carbon and other greenhouse gases have started to be used in the review of federal rules that impact climate emissions as well as being used in various ways at other levels of government and industry.

   Can you talk about the importance of accurately reflecting the impacts of climate change through metrics like the social cost of greenhouse gases when evaluating proposed rules at EPA?

3. The EPA has recently proposed to regulate GHG emissions from power plants. This is very big news on the climate front. Will you provide us with your thoughts on the scope of the proposed rules and how and when they will be implemented?

4. We understand that climate change is a global issue that cannot be solved by action in the U.S. alone. What is EPA and the current Administration doing to ensure increased global action to curb greenhouse gas emissions and achieve environmental justice on an international scale?

5. As your scientists and advocates, what are the science gaps you and your agency are looking at and how can the ATS play a role in answering some of those scientific questions?

6. How do changes in EPA standards impact clinicians at both the hospital and patient level? Should clinicians routinely give feedback information to the EPA to help them evaluate the impact of changes and set standards? Is this type of feedback helpful to the EPA?

7. President Biden has made Environmental Justice and Health Equity a high priority for the entire Administration. As an advocate for Environmental Justice and in an effort to close health disparity gaps, I have to commend EPA for the steps the Agency has taken to achieve this laudable goal. However, despite EPA's commitment to achieving Environmental Justice, I am surprised that the Agency is not proposing to issue a more protective 24-hour standard for particulate matter NAAQS. There is strong evidence to support that a failure to lower the 24-hour standard may widen the health and exposure disparities experienced by minoritized or low-income communities. As such, the ATS strongly urges you to consider lowering the 24-hour standard from 35 ug/m^3 to 25 ug/m^3. Given this context, will you please tell us more about the good work EPA is doing to advance Environmental Justice, and your reasoning for not taking advantage of the opportunity to address this issue by lowering the 24-hour PM NAAQS.

8. What is the long-term vision for home stove usage in the US as they are a major cause of environmental toxicant exposure for children? If changes are made, how do we avoid socioeconomic discrimination (stoves are expensive!)?

Additional questions (if time permits)

- Are there opportunities to regulate indoor sources of air pollution that contribute to outdoor air quality under the scope of the Clean Air Act?
- We are also interested in your thoughts on global goals.

- Several important medications in healthcare have had to be reformulated due to environmental hazards because they are otherwise considered hazardous waste. This includes metered dose inhalers routinely prescribed by respiratory health professionals. What are your thoughts on how to mitigate the environmental impact of these drugs, both short and long-term, without ultimately compromising the care of our patients but limiting access to the best medications, and creating higher costs to patients?

Message

From: Semafor Net Zero [netzero@semafor.com]
Sent: 3/15/2023 2:48:19 PM
To: Carroll, Timothy [Carroll.Timothy@epa.gov]
Subject: Climate tech after SVB

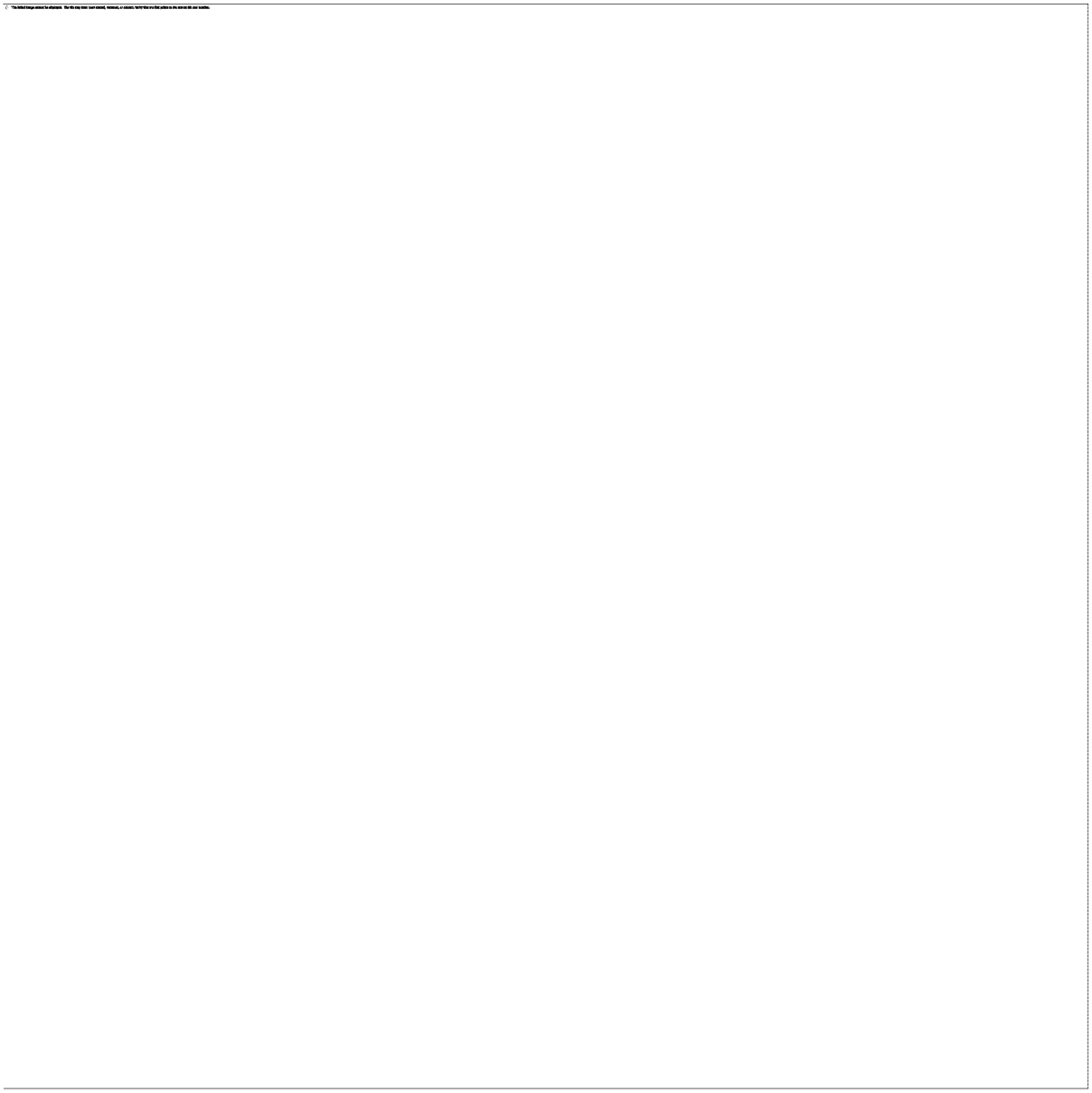
Hi everyone, welcome back to Net Zero. Panic gripped many climate tech startups and venture capital

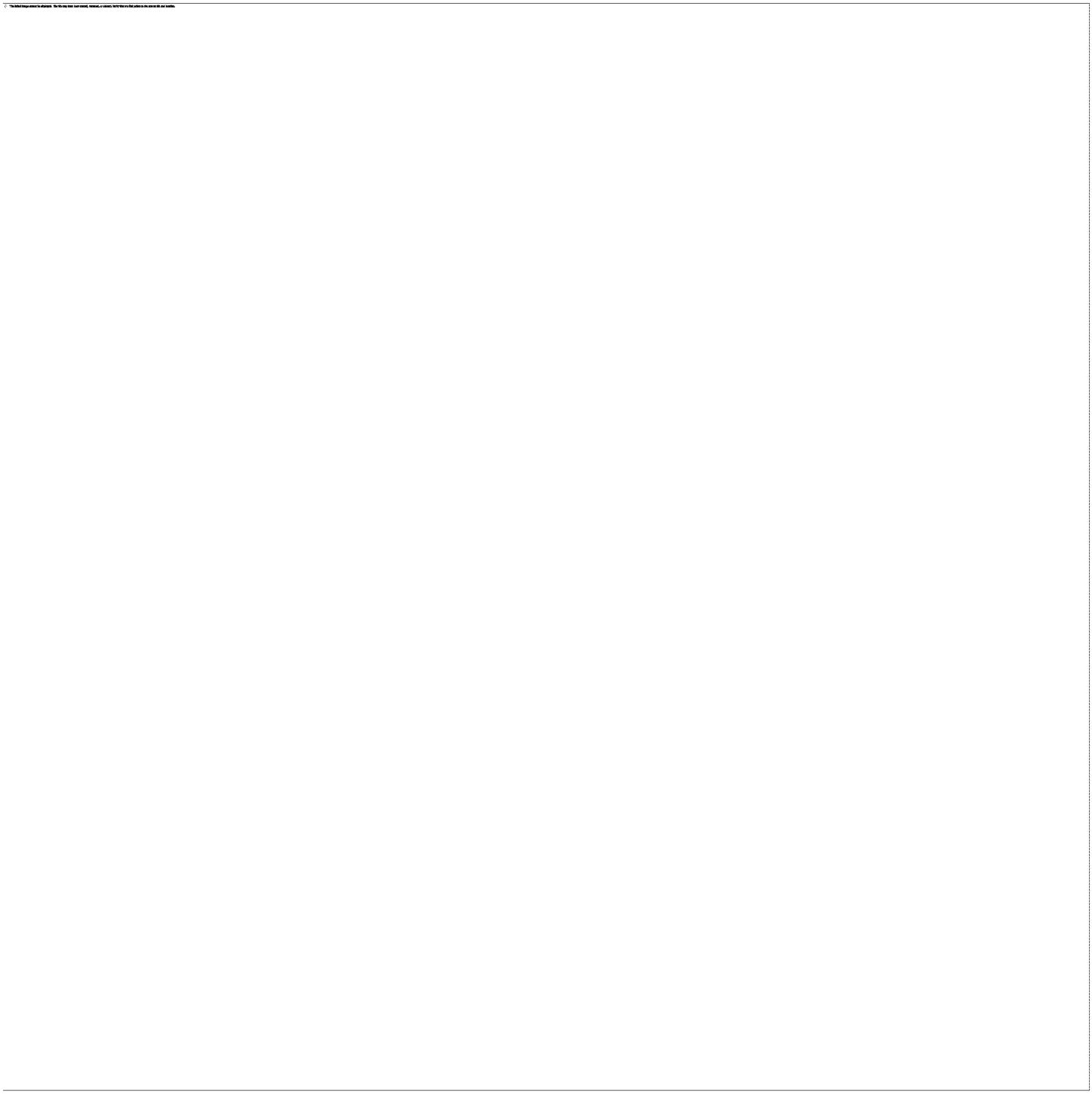
READ ON THE WEB→

Net Zero

with Tim McDonnell

SANTA CLARA | RIYADH | CAMBRIDGE





Hi everyone, welcome back to Net Zero.

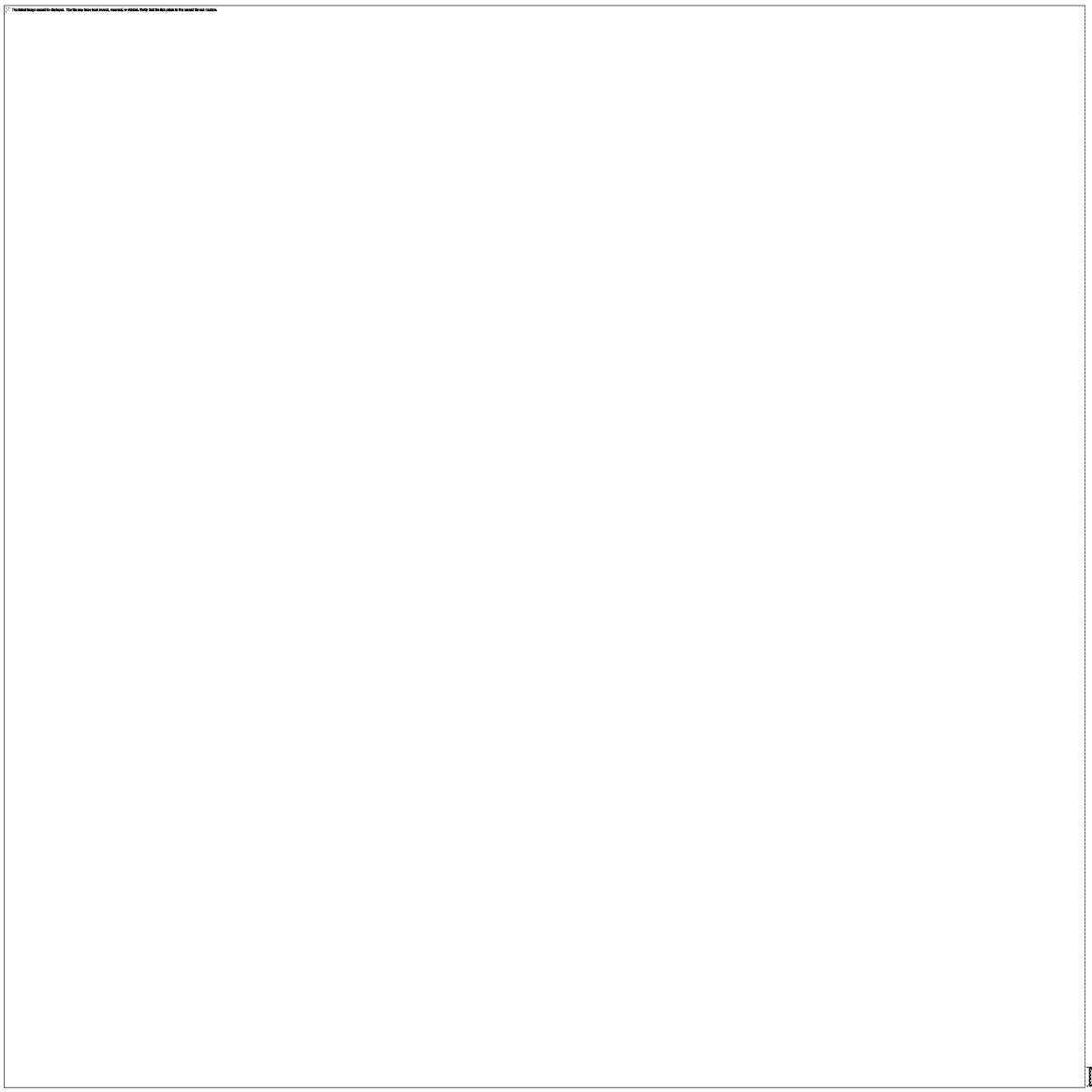
Panic gripped many climate tech startups and venture capital firms following the collapse of Silicon Valley Bank, which had been one of the industry's top financial services providers. Once the federal government stepped in to backstop deposits, the situation "went from 11 out of 10 on the danger scale to 2 out of 10," Zack Bogue of venture firm DCVC told me. "But we're not out of the woods yet." It won't be easy for another bank to fill SVB's shoes on climate — at a time when the industry was already under mounting financial pressure.

Also in today's issue, a conversation with Naomi Oreskes, historian of fossil fuel misinformation, and a look at the obscure metric the federal government could use to limit drilling on public lands.

If you like what you're reading, spread the word.

↓↓

Warmups



Lucas Jackson/Reuters

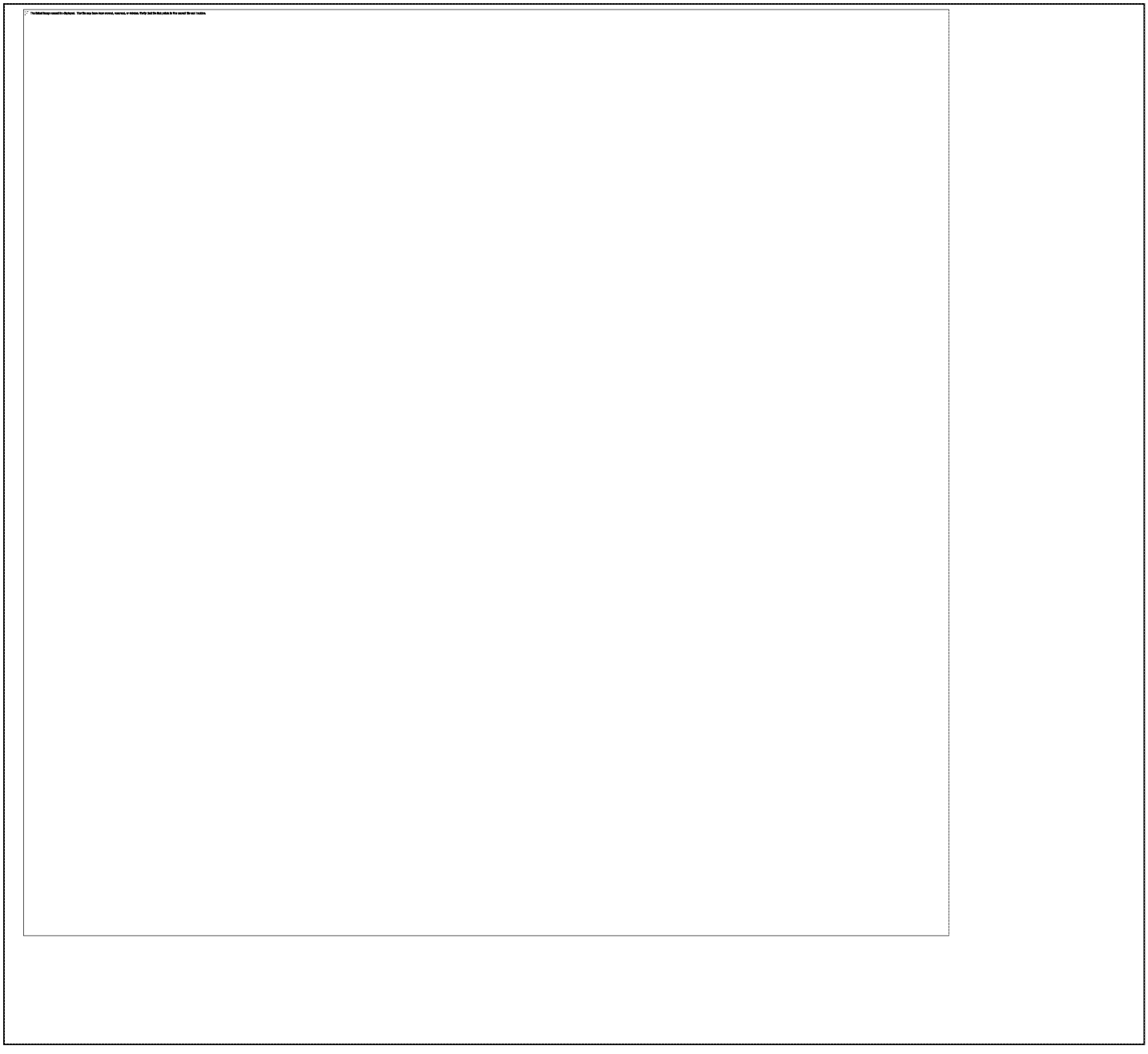
The Biden administration approved an $8 billion plan by ConocoPhillips to drill three oil wells in Alaska's North Slope. The Willow project was fiercely opposed by environmental groups, in light of warnings from the International Energy Agency that any new oil drilling sites are incompatible with the Paris Agreement warming goals. But the White House had few options, officials there said, since the company already held a lease for the site. Instead, the administration simultaneously announced new restrictions on future offshore lease sales in the region. Environmental groups have already filed suit over the Willow approval.

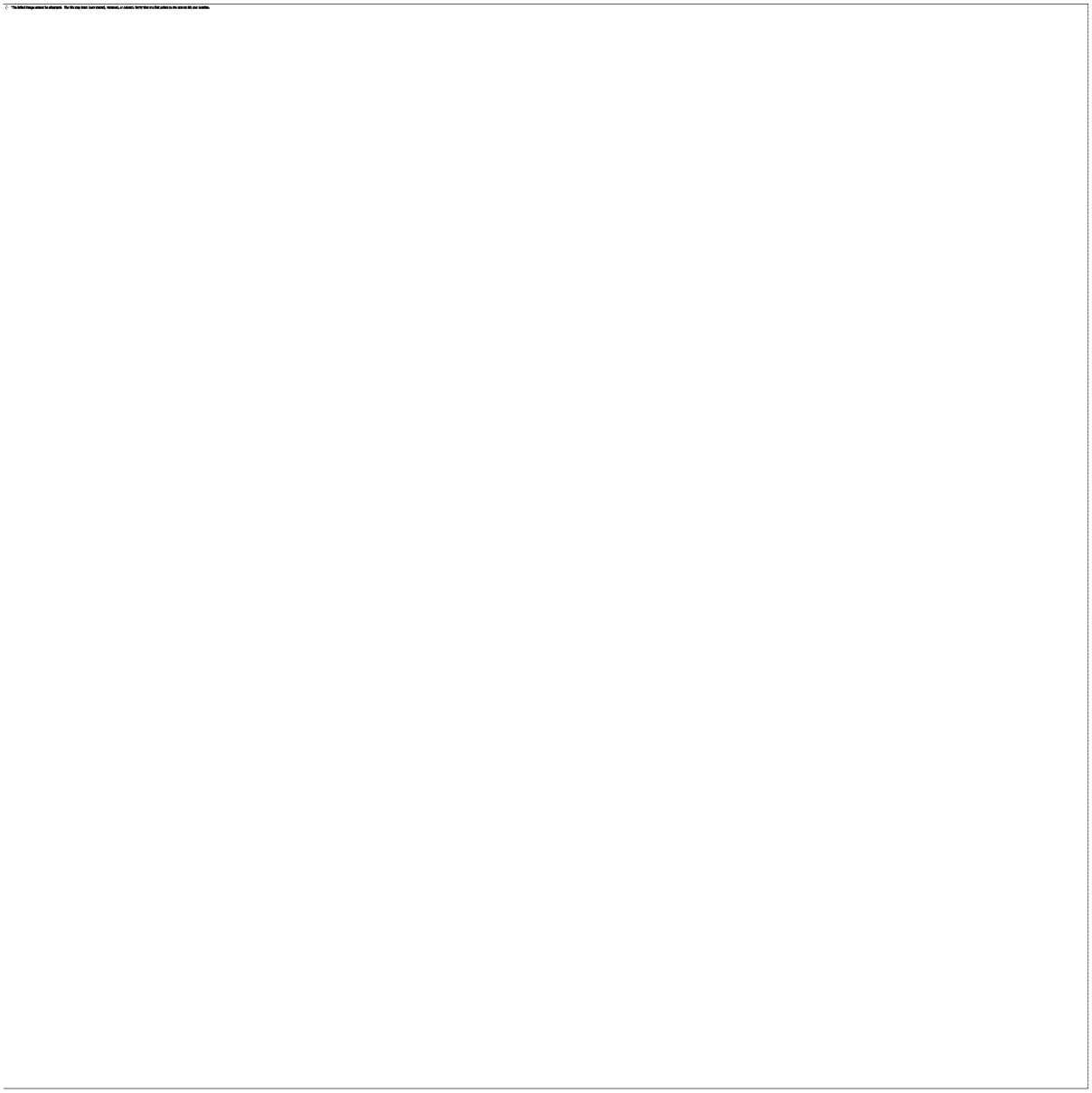
Saudi Aramco, the world's largest oil company by revenue, posted $161 billion in profit for 2022. That's a record for any oil company and nearly as much as 2022 profits for the five largest non-state oil companies combined. Aramco plans to increase its annual capital spending by about $20 billion during the next three years, up from $38 billion in 2022. 60% of the new total will be devoted to drilling, with the rest divided between refining, low-carbon enterprises, and other investments.

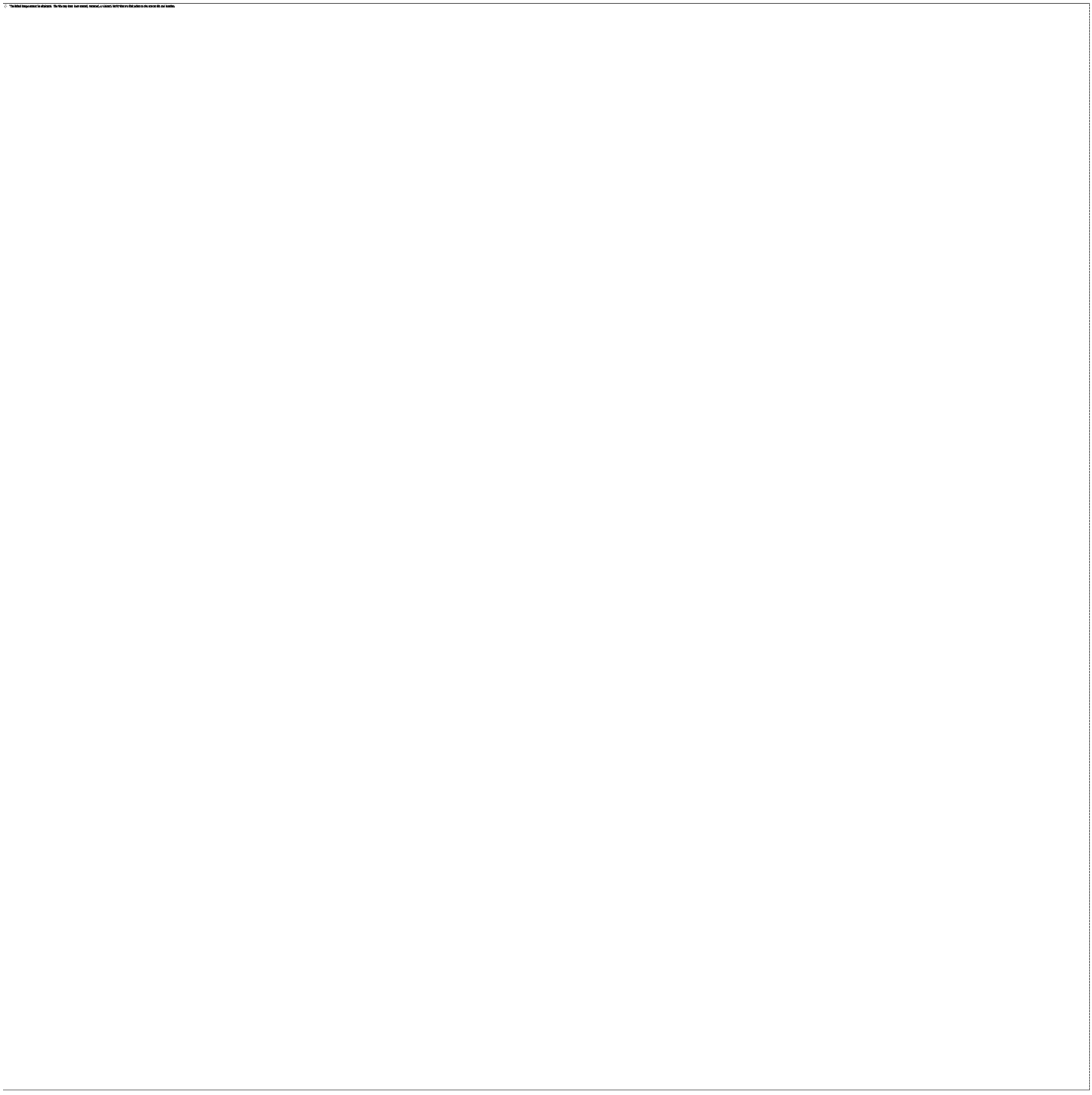
China is set to control half of global cobalt production once a China-owned mine in the Democratic Republic of Congo opens this year. China already leads the world in the production and refining of most critical minerals by a large margin. As cobalt mining globally gathers pace, the price has crashed to its lowest level in three years.

Britain said it would offer nuclear power the same investment incentives as renewable energy. In his annual budget statement, the country's finance minister also said the U.K. would consider co-funding small modular reactor technology. London is, meanwhile, planning to announce new clean-energy policies this month to respond to the U.S.'s Inflation Reduction Act and the European Union's Green Industrial Plan, Bloomberg reported.

Evidence

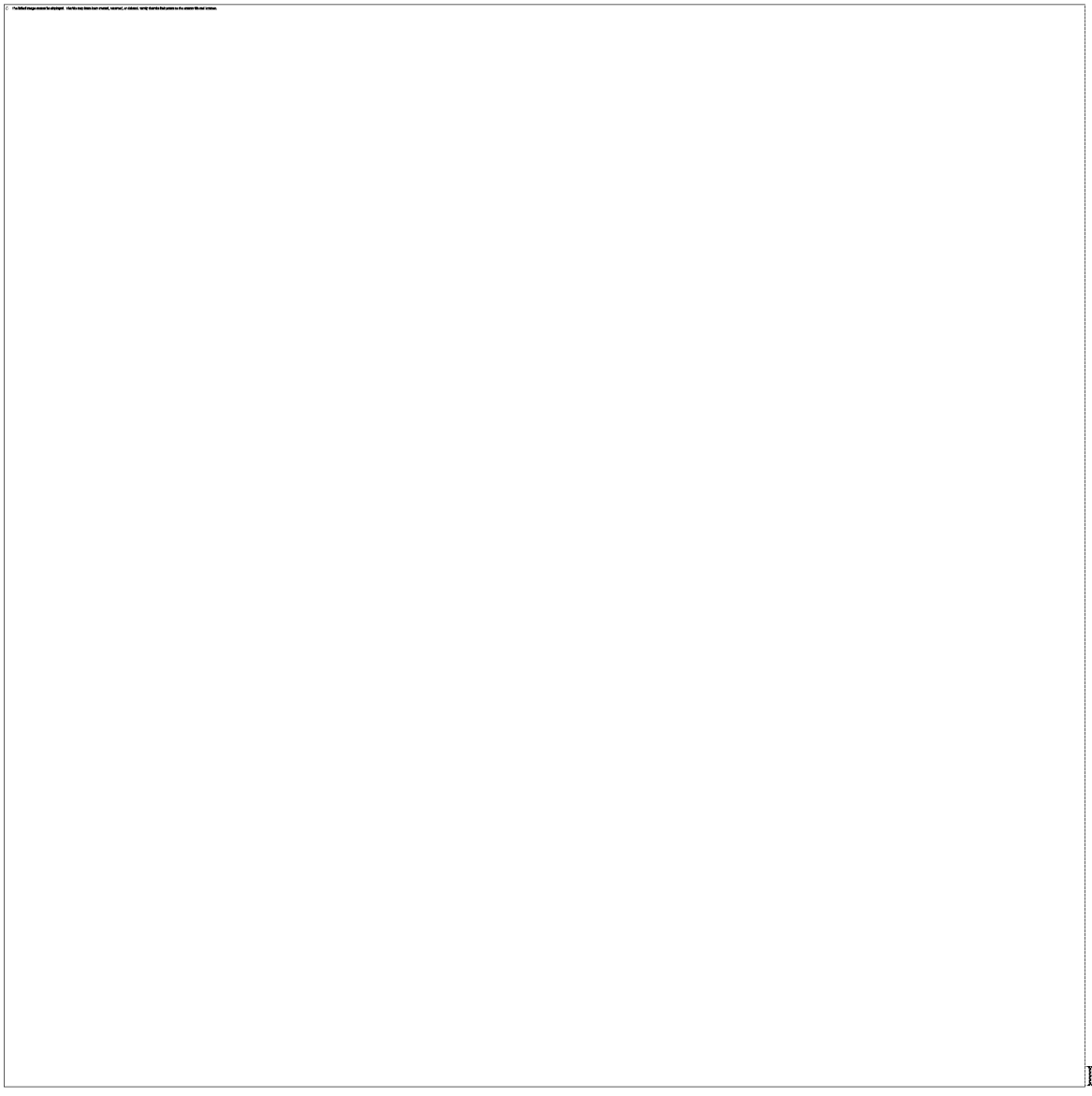






Tim McDonnell

How SVB’s collapse hurts the energy transition



KORI SUZUKI/Reuters

THE SCENE

Just before her low-carbon cement company's third anniversary, as Leah Ellis was climbing the stage to speak on a panel at the CERAWeek energy conference in Houston last week, her phone started blowing up with people telling her to pull the business's money out of Silicon Valley Bank.

Sublime Systems had just closed a $40 million Series A fundraising round, cash that was parked in SVB. And Ellis's company was in the middle of negotiating a loan from the bank to scale up its manufacturing operations enough to be cost-competitive with traditional cement.

"In three years we've scaled from a gram to 100 tons a year," she said. "I kept thinking how catastrophic it would be if that was all lost for no reason."

A government backstop meant Sublime Systems could get its money, but its chances at the loan are uncertain. The factory Ellis wants to build could cost up to half a billion dollars, a prospect that was already daunting enough before the SVB debacle. Indeed, the collapse comes at a bad time for many climate tech companies — one of SVB's core constituencies. They are racing to scale up and accelerate the energy transition, all while fighting macroeconomic headwinds including inflation, rising interest rates, and supply chain bottlenecks.

TIM'S VIEW

Many climate tech companies, especially those working on renewable energy projects, have high capital requirements: They're building factories, solar farms, or other big infrastructure that is expensive and typically financed by debt. The past decade — an era of unusually low interest rates — improved projects' profit margins and helped make nascent tech commercially viable.

That's changing. The U.S. Federal Reserve is expected to raise rates up to 5.5% this year, and other global central banks are following suit, after several years in which they were close to zero. Costs for steel and other materials are also rising. So climate tech was already seeing its returns and financing options squeezed before the SVB collapse.

"Everything is getting squished in," said Tom Chi, founding partner at At One Ventures in San Francisco. "Some of that is healthy because it makes you more disciplined, but it's a little past healthy at this point."

Because of its institutional understanding of and commitment to climate tech, SVB was often willing and able to offer financing, on better terms, for projects that other banks shied away from. It was the sixth-largest financier of U.S. renewable energy projects in 2022, at $1.2 billion, and planned to offer $5 billion in financing by 2027 to all kinds of climate-related enterprises. Those statistics probably underplay its role in climate tech, since it was especially known as a bank for smaller startups, and served more than 1,500 climate and sustainability companies.

SVB had more insight than most banks into which types of startups were most likely to secure additional venture funding, which gave it a more nuanced view of risk. Ellis said it helped that individual bankers, such as climate and energy VP Danny Donovan, were a fixed presence at climate tech conferences and had at least half the industry on speed dial, often even financing founders' personal mortgages. SVB also didn't have business with

fossil fuel companies, which some founders I spoke to cited as another reason, in the interest of minimizing their indirect carbon footprints, they chose it over bigger banks.

SVB was one of the only places climate tech companies could turn for venture debt, a form of short-term lending for companies without assets to offer as collateral, a service Ellis and many of her peers saw as indispensable. It's not clear exactly how much of the venture debt that the bank had extended to climate tech companies, but which was as yet untapped, remains available, although several VCs I spoke to said companies they had invested in, like Sublime Systems, were now scrambling for alternatives. That will be challenging, because these loans are typically tied to the completion of a new fundraising round.

The upshot is that even though startups' cash may be protected by U.S. government guarantees, without SVB the climate tech financing landscape will be more constricted than it already was.

QUOTABLE

"I would guess the SVB collapse will cause a one to two-quarter delay on a lot of things in climate tech. That doesn't sound like a lot, but when you look at how much needs to get deployed in the next decade, losing half a year is really not good." — Peter Reinhardt, CEO of carbon sequestration startup Charm Industrial, which banked at SVB.

ROOM FOR DISAGREEMENT

If climate tech is facing new headwinds, it is also being propelled by unprecedented tailwinds, particularly from the Inflation Reduction Act, the U.S.'s mammoth green support program. The tax code has never been as favorable for the development and marketing of low-carbon technology. Unlike some of the more speculative crypto or fintech startups with accounts at SVB, climate startups there tended to be those that had already passed muster with VCs as being on a clear path to compete head-on with high-carbon incumbent technologies. Strong businesses, in other words, won't lack banking suitors, and other banks will surely step in to win SVB's clients.

Rising interest rates also work to the advantage of startups focused on energy efficiency, to the extent these companies help other businesses cut their overhead costs. Electric utilities, in particular, are facing their own mounting multi-billion-dollar upgrade costs and are desperate for solutions to avoid a complete overhaul of the grid that they can't afford, according to Lisa Lambert, president of National Grid Partners, the venture wing of the electric utility that serves New York and Massachusetts.

"It could be really disastrous for the country's infrastructure if these kinds of startups don't get funded," she said.

THE VIEW FROM RED STATES

Several VCs I spoke to emphasized that as more climate tech companies move from the lab to commercial scale, they are spreading from liberal startup hubs like San Francisco and Boston into conservative states with favorable tax codes for manufacturing. Among those firms are SVB clients like Ascend Elements, which is

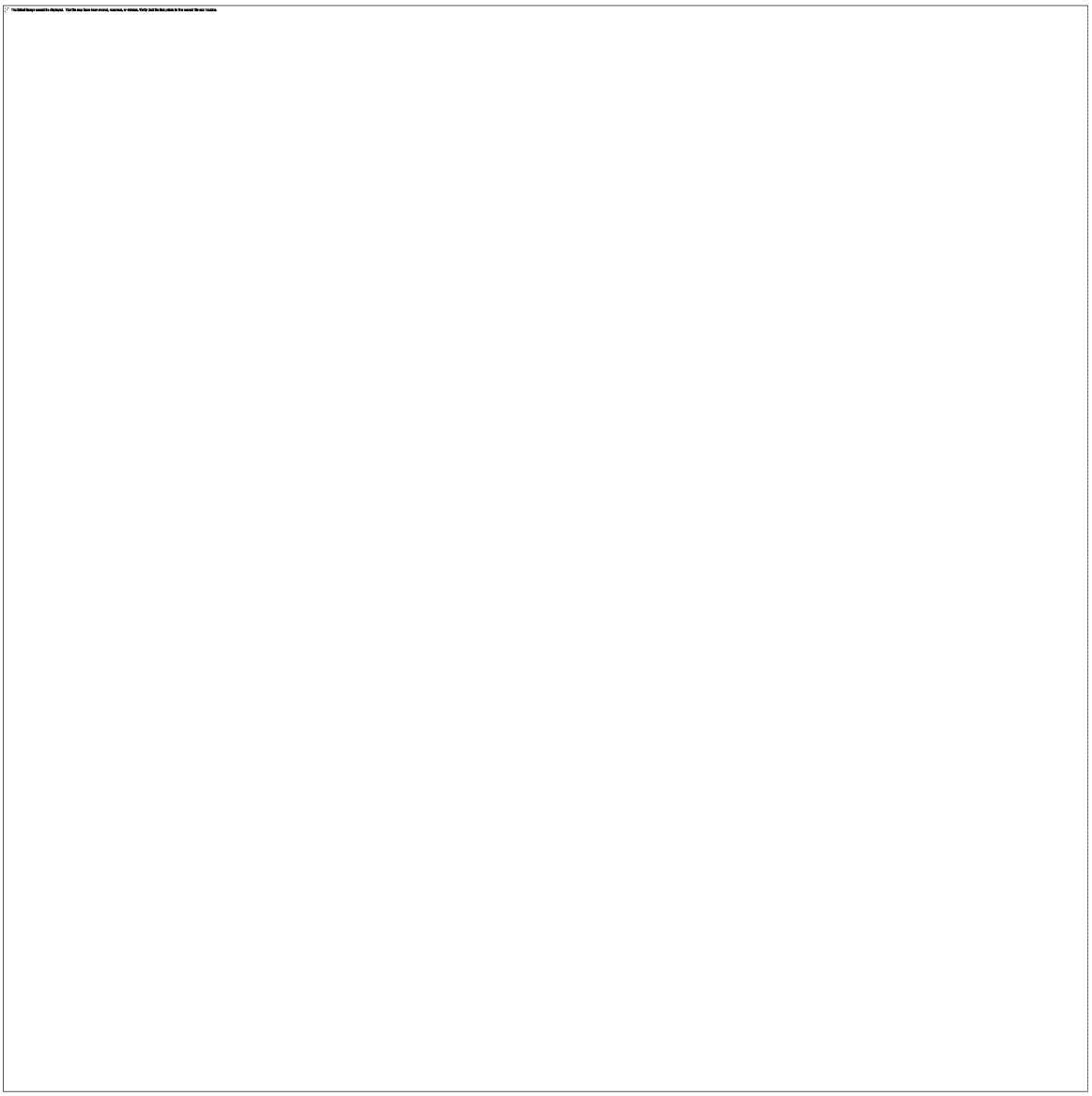
building a $1 billion battery recycling facility in Kentucky, and Monarch Tractor, which is building autonomous, electric farming vehicles in Ohio. Those companies can't continue to grow and hire if they can't access capital.

"It's a Silicon Valley bank, but not a Silicon Valley problem," Avra van der Zee, COO at Elemental Excelerator, a nonprofit climate tech investor, told me.

NOTABLE

- One of SVB's highest-profile climate clients was solar developer Sunrun, whose stock price fell to its lowest point since October over the weekend. It hasn't bounced back yet, but its CEO told Bloomberg that on Friday, "a lot of other financial institutions were reaching out for our business."

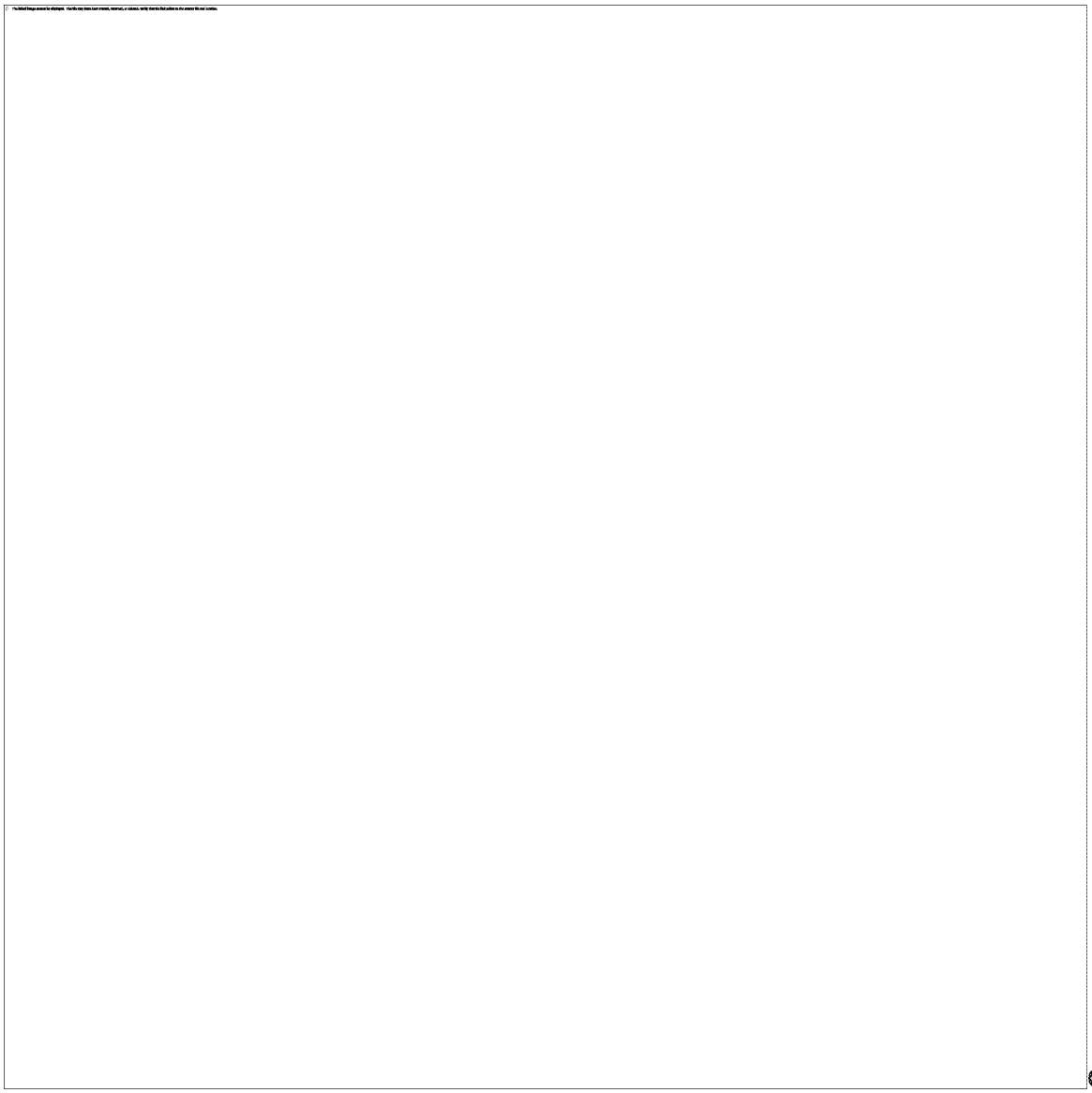
Semafor Stat



Metric tons of green hydrogen that a Texas company plans to produce at what it says is the world's largest planned green hydrogen facility, announced this month. One customer it has lined up already: Elon Musk's SpaceX, which plans to use it as rocket fuel.

↓↓

Q&A



Courtesy Bloomsbury

Harvard University science historian Naomi Oreskes was one of the first researchers to systematically investigate what fossil fuel companies knew about climate, when they knew it, and what they did to cover it up. Her 2010 book *Merchants of Doubt*, co-authored with Erik M. Conway, drew disturbing links between the PR strategies of Big Oil and Big Tobacco. Her latest, *The Big Myth*, also written with Conway, was published last month, and probes deeper into why anti-science propaganda has been so effective at permeating U.S. public policy. You can read my complete interview with Oreskes here.

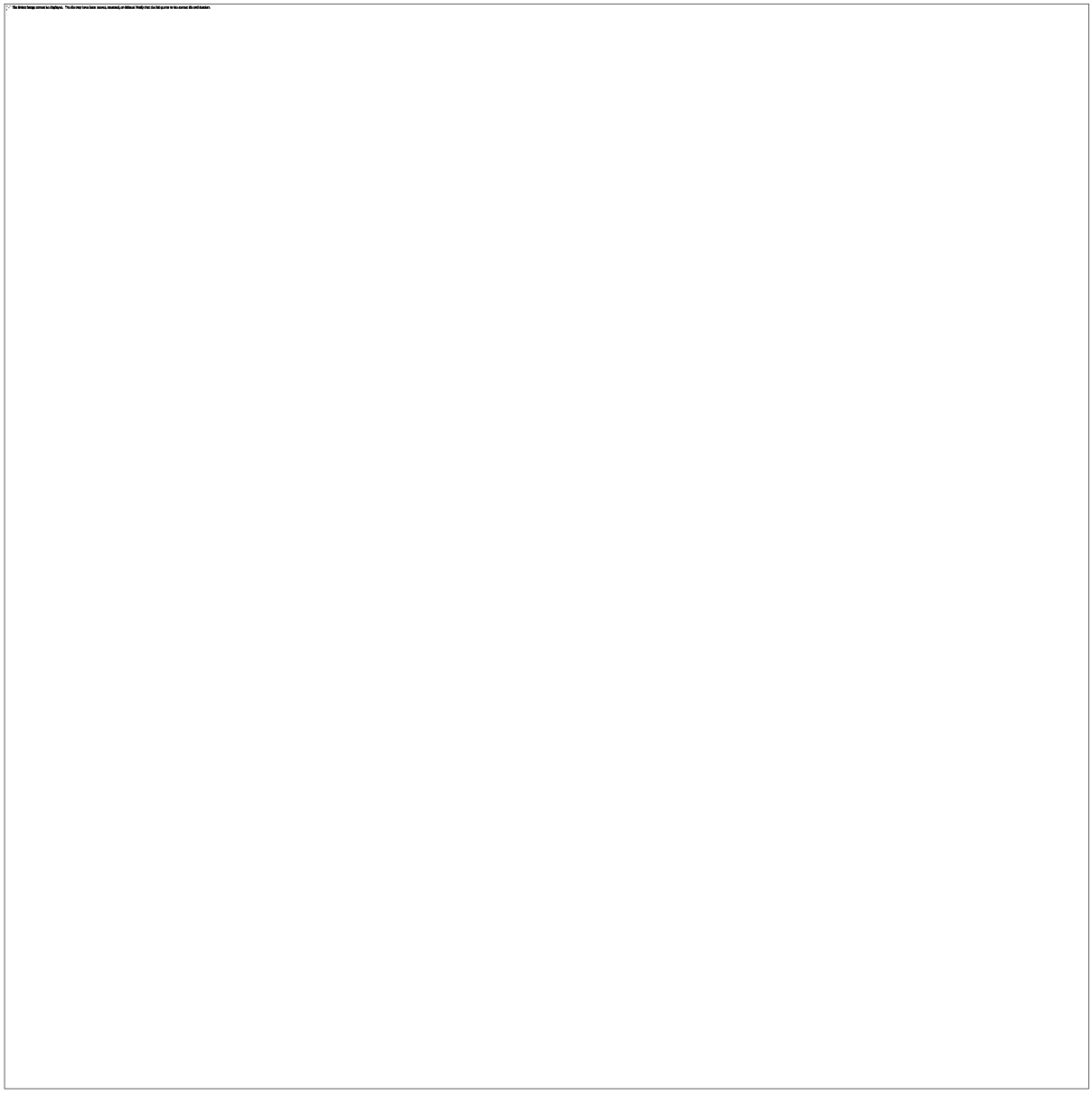
Tim: How have you seen climate misinformation from the fossil fuel industry change over time?

Oreskes: We are moving in the right direction. But we are nowhere close to where we need to be, and disinformation continues to be widespread. All of these companies are continuing to develop new sources of oil and gas, even as we speak. And that is simply not consistent with accepting the scientific evidence.

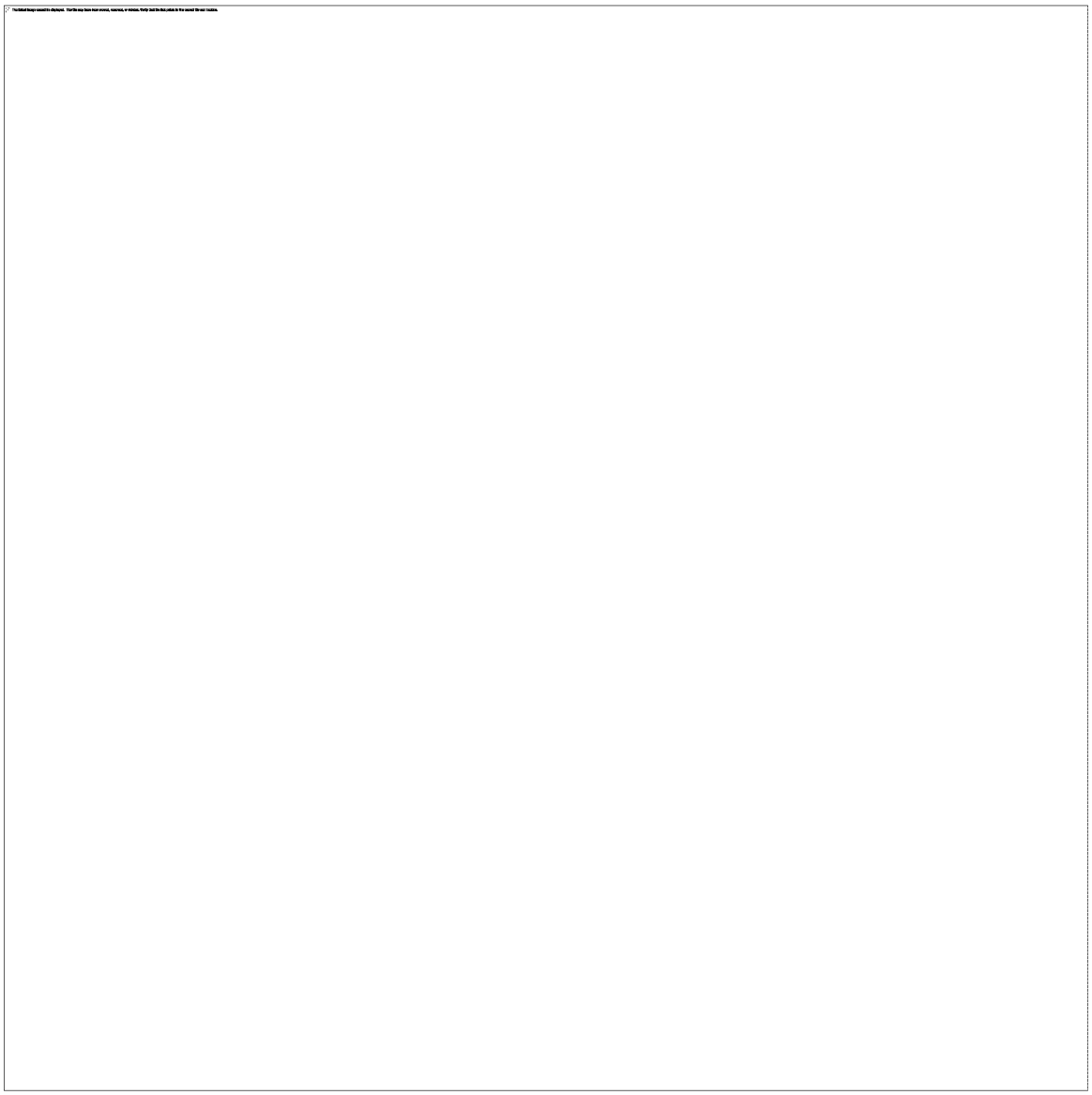
We're in a race between the energy transition and massive climate disruption. The jury's out as to which of those happens first. We cannot be complacent about this. For example there's still this myth that if you let the government decide whether or not you can have a gas stove in your home, we're on a slippery slope to socialism. And if you see those ads, you might not know that they're funded by the gas industry. The fossil fuel industry is really fighting for its life. And when people are fighting for their lives, they sometimes get pretty vicious.

Tim: Your work has informed Congressional investigations of oil company misinformation. What else should Congress be looking for? Do you have a white whale, some smoking gun document you're still trying to find?

Oreskes: No, because I think the white whale metaphor is exactly right. It's a big mistake for a historian to become obsessed with a specific document. I think that's kind of missing the point. But I think Congress has the potential, with the power of the subpoena, to really show the American people what this industry has done. My biggest concern right now is that people will fall for promises that the industry can't deliver on.



Glossary



In a legal settlement reached this week between a Utah coal company and environmental groups, the company agreed to incorporate the social cost of carbon of its mining activities in paperwork it must file to maintain leases on federal land. It's the first time a U.S. coal company has agreed to complete a social cost of carbon analysis, which will weigh heavily against the mines' economic benefit. The company will use a cost determined by Biden administration economists of $51 per ton. Legal experts think the ruling is a step toward making social cost of carbon analysis mandatory for all fossil fuel development on public land.

How are we doing?

If you're enjoying Net Zero, please share with your family, friends and colleagues. I'd love to have them read it, too.

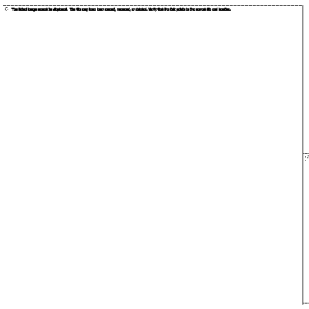
You can reach me either by replying to this email, or on netzero@semafor.com.

To ensure this email doesn't go to your junk folder, add netzero@semafor.com to your contacts. In Gmail you should drag this newsletter over to your 'Primary' tab.

Thanks for reading and see you on Friday!

Want more Semafor? Explore all our newsletters at semafor.com/newsletters

— *Tim (with Prashant Rao and Jeronimo Gonzalez)*



Message

From: Astrid DuBois (WE ACT) [astrid@weact.org]
Sent: 3/22/2023 1:09:02 PM
To: Tejada, Matthew (he/him/his) [Tejada.Matthew@epa.gov]; Collin, Robin [Collin.Robin@epa.gov]
CC: Annika Larson [annika.larson@weact.org]; Amneh Minkara [amneh.minkara@sierraclub.org]
Subject: EPA meeting request | Office of Indoor Air Contacts?

Hi Matt and Robin,

I wanted to reach out and see if you can support the WE ACT team with a meeting request with the Office of Indoor Air? We are hoping to present the findings from our Out of Gas, In with Justice report that looks at the impacts on indoor air pollution when transitioning from gas to induction stoves. We were thinking of first meeting with the EPA Office of Indoor Air, but would be open to recommendations if you think a broader group would be more effective. To date, we have had similar meetings with the Electrification Caucus, CPSC, HUD, and HHS.

We have reached out to Daniel Hooper and David Rowson and wanted to see if those seem like the right contacts. Daniel shared a schedule request which we are completing, but wanted to loop you in as well in case you have additional recommendations.

Many thanks!

Astrid DuBois | she/ella
Legislative Coordinator
Federal Policy Office
Phone | Teléfono 646-866-8485
WE ACT for Environmental Justice | WE ACT por la Justica Ambiental
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---------- Forwarded message ---------
From: **Amneh Minkara** <amneh.minkara@sierraclub.org>
Date: Mon, Mar 20, 2023 at 4:40 PM
Subject: Indoor Air Report
To: <hooper.daniel@epa.gov>
Cc: Annika Larson <annika.larson@weact.org>, Astrid DuBois (WE ACT) <astrid@weact.org>

Good afternoon, Dan!

I don't believe we've met before, so by way of virtual introduction - hello! My name is Amneh and I'm the Deputy Director of Sierra Club's Building Electrification Campaign. I have also cc'd my colleagues Astrid & Annika from the Federal Policy Office at WE ACT for Environmental Justice.

I'm reaching out because we have been trying to track down the right contact at EPA to discuss indoor air quality issues with and one of my colleagues said you might be able to point us in the right direction. WE ACT

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--

Amneh Minkara
Federal Deputy Director
Building Electrification Campaign
Pronouns: she/they
404-735-3290 (cell)
amneh.minkara@sierraclub.org

Message

From: Tejada, Matthew (he/him/his) [Tejada.Matthew@epa.gov]
Sent: 3/22/2023 5:52:44 PM
To: Astrid DuBois (WE ACT) [astrid@weact.org]; Collin, Robin [Collin.Robin@epa.gov]
CC: Annika Larson [annika.larson@weact.org]; Amneh Minkara [amneh.minkara@sierraclub.org]
Subject: RE: EPA meeting request | Office of Indoor Air Contacts?

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Best,

M

Matthew Tejada
Deputy Assistant Administrator for Environmental Justice
Office of Environmental Justice and External Civil Rights
US Environmental Protection Agency
202-360-6867 (cell)

Pronouns: he, him, his

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From: Astrid DuBois (WE ACT) <astrid@weact.org>
Sent: Wednesday, March 22, 2023 9:09 AM
To: Tejada, Matthew (he/him/his) <Tejada.Matthew@epa.gov>; Collin, Robin <Collin.Robin@epa.gov>
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Astrid DuBois | she/ella
Legislative Coordinator
Federal Policy Office
Phone | Teléfono 646-866-8485
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From: **Amneh Minkara** <amneh.minkara@sierraclub.org>
Date: Mon, Mar 20, 2023 at 4:40 PM
Subject: Indoor Air Report
To: <hooper.daniel@epa.gov>
Cc: Annika Larson <annika.larson@weact.org>, Astrid DuBois (WE ACT) <astrid@weact.org>

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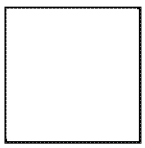

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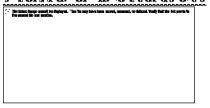

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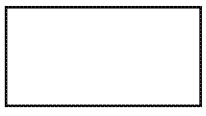

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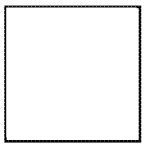

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January 3, 2023

Honorable Michael Regan
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Re: *EPA's Definition of PFAS*

Dear Administrator Regan,

Thank you for your ongoing commitment to address the PFAS crisis and to provide relief and protection for communities across the country whose drinking water has been contaminated by PFAS. EPA has taken several important preliminary steps toward addressing the legacy of widespread PFAS pollution, particularly for PFOA and PFOS. However, as the production, use and disposal of PFAS continues to grow, it is critical that the Agency's policies not repeat previous mistakes of underestimating the scope of the PFAS crisis, or discounting the harm posed by the full class of PFAS.

We are writing today to urge EPA to adopt an Agency-wide science-based definition of PFAS that will ensure that all PFAS, including those with one fully fluorinated carbon atom, or two or more non-adjacent fluorinated carbon atoms, do not spread undetected over the next decade. We ask EPA to adopt a definition of PFAS that is based on the hazard characteristic of persistence that defines the full class of PFAS and is in line with the definition widely used by states of "at least one fully fluorinated carbon atom". [1] Adopting an Agency-wide definition that captures the full scope of PFAS chemicals is critical to meeting the Administration's goals of addressing the PFAS crisis, advancing environmental justice, and restoring scientific integrity to EPA.

As you know, EPA is currently working on a rule under the Toxic Substances Control Act (TSCA) – mandated by Congress in the FY20 National Defense Authorization Act (NDAA) -- that will require reporting on PFAS manufacturing, use, disposal, and exposure. EPA's proposed rule used what the Agency calls a "working definition" of PFAS, which defines PFAS to be a chemical containing two

---

[1] Such a definition would be consistent with the consensus recommendation released by the Organization of Economic Cooperation and Development (OECD) in 2021: "PFASs are defined as fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), i.e. with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF3) or a perfluorinated methylene group (–CF2–) is a PFAS."

OECD. "Reconciling Terminology of the Universe of Per- and Polyfluoroalkyl Substances: Recommendations and Practical Guidance." Series on Risk Management, July 9, 2021. [HYPERLINK "https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/CBC/MONO(2021)25&docLanguage=En"].

adjacent fluorinated carbon atoms, with at least one of them fully fluorinated. The Agency's "working definition" is too narrow, excluding hundreds, perhaps thousands, of PFAS, including substances that have multiple fluorinated carbon atoms that are not adjacent or that have one fully fluorinated carbon atom. If the working definition is adopted, these excluded PFAS are likely to go undetected, and their releases unreported, depriving the agency and the public of critical exposure information.

The Agency received comments from a range of stakeholders on the proposed rule, urging EPA to adopt a broader definition, such as the "at least one fully fluorinated carbon atom" definition or the consensus definition published by the Organization of Economic Cooperation and Development (OECD). Commenters seeking the broader definition included drinking water utilities associations (AWWA, AMWA and ACWA), state environmental agencies (ASDWA, NACWA, and ECOS), independent scientists with expertise in PFAS, environmental and health NGOs, and 17 Attorneys General.

While EPA has stated that the "working definition" focuses on chemicals for which there is more likely to be exposure, a definition premised on likelihood of exposure is neither science-based nor health protective. The Agency has offered no data to support its assertion, and some of the PFAS excluded by the "working definition" have already been found in drinking water, including in the Cape Fear River Basin in North Carolina. This is just one example of how a narrow definition fails to capture PFAS currently and historically manufactured. It could also fail to capture PFAS that could be generated in the future, or as byproducts or degradation products in the lifecycle of PFAS manufacture and use. Widespread environmental contamination and human exposure to some of these PFAS has already been documented.[2] While the Office of Water used a slightly broader definition of PFAS in its final Contaminant Candidate List 5 (CCL5), it is still insufficient to capture many other PFAS that people may be exposed to. In particular, neither the "working definition" or the definition used for the CCL5 list includes ultra-short chain PFAS that are currently manufactured or created as byproducts or degradants of other chemicals.

EPA's reliance on narrow definitions is troubling in several respects. If the PFAS Reporting rule is finalized using the EPA's proposed "working definition" or even a slightly broader definition then EPA, Congress, and the public will be denied essential information that is necessary to understand the scope of, and sources responsible for, the PFAS crisis. EPA, the states, Congress, and the public, cannot craft informed and effective strategies to prioritize and regulate PFAS without this information. In addition, EPA's "working definition" denies the public information about the large volume of PFAS being disposed of and likely re-distributed into overburdened communities when incinerated. We found data on six PFAS in the initial 2020 TRI dataset that were not labeled by the EPA as PFAS – these PFAS made up around 87% of the total reported PFAS production waste.[3] These examples also raise concerns for how

---

[2] Pickard, Heidi M., Alison S. Criscitiello, Daniel Persaud, Christine Spencer, Derek C. G. Muir, Igor Lehnherr, Martin J. Sharp, Amila O. De Silva, and Cora J. Young. "Ice Core Record of Persistent Short-Chain Fluorinated Alkyl Acids: Evidence of the Impact From Global Environmental Regulations." *Geophysical Research Letters* 47, no. 10 (2020): e2020GL087535. [HYPERLINK "https://doi.org/10.1029/2020GL087535"].

[3] Reade, Anna, and Yiliqi. "New EPA Data: Huge Amounts of PFAS Underreported and Burned." *NRDC* (blog), October 21, 2021. [HYPERLINK "https://www.nrdc.org/experts/yiliqi/new-epa-data-huge-amounts-pfas-underreported-and-burned-0"]

PFAS are being defined, monitored, evaluated and regulated by the Office of Water, the Office of Air and Radiation, and elsewhere in the Agency.

And, because there is no scientific justification for EPA's "working definition" provided – as well as little transparency as to how or when it was developed, or who was involved, both inside and outside the government – it further challenges the Administration's stated goal to restore scientific integrity and credibility at the Agency.

In response to concerns about the Agency's "working definition" EPA staff have noted that OECD recognized that regulatory bodies might opt to take action on smaller subsets of PFAS, not necessarily every substance that meets the PFAS definition. That is irrelevant. The definition of PFAS and the scope of regulations taken to address PFAS pollution are two different matters. The intent to regulate subsets of PFAS does not justify continuing to rely upon a narrow and unprotective definition of PFAS. We recognize that EPA may choose to regulate subsets of the PFAS class for various situations; but it should do so while operating from a common understanding and recognition of the full class.

We are aware that industries, particularly those that manufacture, process, and use PFAS, have argued for excluding some PFAS from the definition. For example, industry interests have promoted the idea that polymers are "safe" and therefore should not be covered by EPA's definition of PFAS. This is wrong in several respects. To industry even PFOA, PFOS, and GenX are "safe." PFAS manufacturers have never acknowledged the threat that their chemicals pose—even when internal documents demonstrate that the companies have been aware of the risks for decades. In addition, industry's claims for the inherent safety of fluoropolymers are unfounded as exposures during fluoropolymer production, use, and disposal have been linked to health harms.[4] Finally, the production of polymers is a major source of PFAS pollution, especially from the monomers used to create the polymers.[5] In fact, most of the

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[4] Hays, Hannah L., and Henry Spiller. "Fluoropolymer-Associated Illness: Clinical Toxicology: Vol 52, No 8." *Clinical Toxicology* 52, no. 8 (September 9, 2014): 848–55.

Centers for Disease Control and Prevention. "Severe Acute Respiratory Illness Linked to Use of Shoe Sprays -- Colorado, November 1993." *Morbidity and Mortality Weekly Report* 42, no. 46 (November 26, 1993): 885–87.

Fluoropolymer Division. *Guide to the Safe Handling of Fluoropolymer Resins*. 5th ed. The Plastics Industry Association, 2019. [HYPERLINK "https://www.turi.org/content/download/12048/189380/file/Guide%20to%20the%20Safe%20Handling%20of%20Fluoropolymer%20Resins%20v5%2020190130-1.pdf"].

Dale, Steve. "Fatal Fumes." *Chicago Tribune*, March 25, 1995. [HYPERLINK "https://www.chicagotribune.com/news/ct-xpm-1995-03-26-9503260114-story.html"].

Daniels, Mary. "Stove Fumes Killing Caged Birds." *Chicago Tribune*, March 8, 1986. [HYPERLINK "https://www.chicagotribune.com/news/ct-xpm-1986-03-09-8601180125-story.html"].

[5] Lohmann, Rainer, Ian T. Cousins, Jamie C. DeWitt, Juliane Glüge, Gretta Goldenman, Dorte Herzke, Andrew B. Lindstrom, et al. "Are Fluoropolymers Really of Low Concern for Human and Environmental

contamination in West Virginia and North Carolina is from the DuPont/Chemours facilities' production of fluoropolymers. Thus, information about the production, use and release of polymers is necessary to fully understand the scope of the PFAS crisis and it is essential that fluoropolymers are defined as PFAS.

Others have argued for exempting certain PFAS from the definition based upon their use – in refrigeration, pharmaceuticals, or pesticides, for example. The uses of PFAS may be a relevant consideration for some potential regulatory steps, including prioritizing and focusing regulation within an essential use framework,[6] but usage is irrelevant to a science-based definition and should not be a basis or excuse for defining PFAS narrowly.

The road to addressing the PFAS crisis and protecting the public will be long and difficult. To achieve the Administration's goals, EPA must adopt a definition of PFAS that informs the agency, Congress, states, and the public about the full scope of PFAS exposure and contamination.

We would welcome the opportunity to speak with you about this critically important health, scientific and environmental justice matter. Please contact Daniel Rosenberg ([HYPERLINK "mailto:drosenberg@nrdc.org"]) for any reply or follow-up to this letter.

Sincerely,

Daniel Rosenberg, Senior Attorney, NRDC
Dr. Anna Reade, PhD, Senior Scientist, NRDC
Kyla Bennett, PhD, JD, Director, Science Policy, PEER
Geoffrey R. Gisler, Senior Attorney, SELC
Bonnie Angermeier, Legislative Associate, SELC
Jon Kalmuss-Katz, Senior Attorney, Earthjustice
Rashmi Joglekar PhD, Senior Scientist, Toxic Exposure & Health, Earthjustice

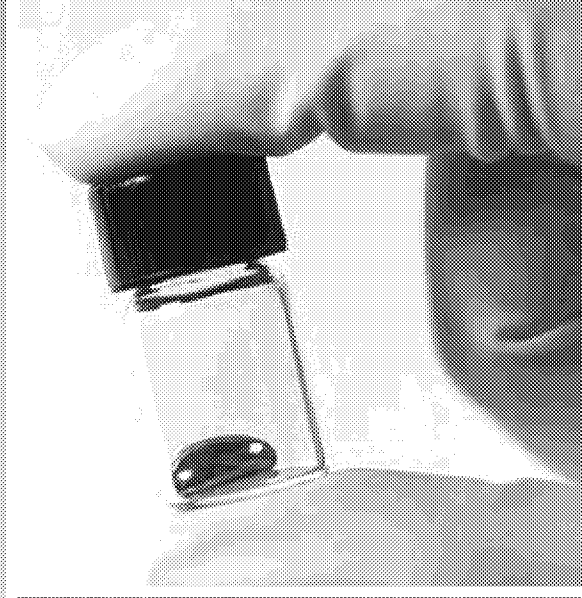
Cc: Assistant Administrators Michal Freedhoff, Radhika Fox, Chris Frey

---

Health and Separate from Other PFAS?" *Environmental Science & Technology* 54, no. 20 (October 20, 2020): 12820–28. [HYPERLINK "https://doi.org/10.1021/acs.est.0c03244"].

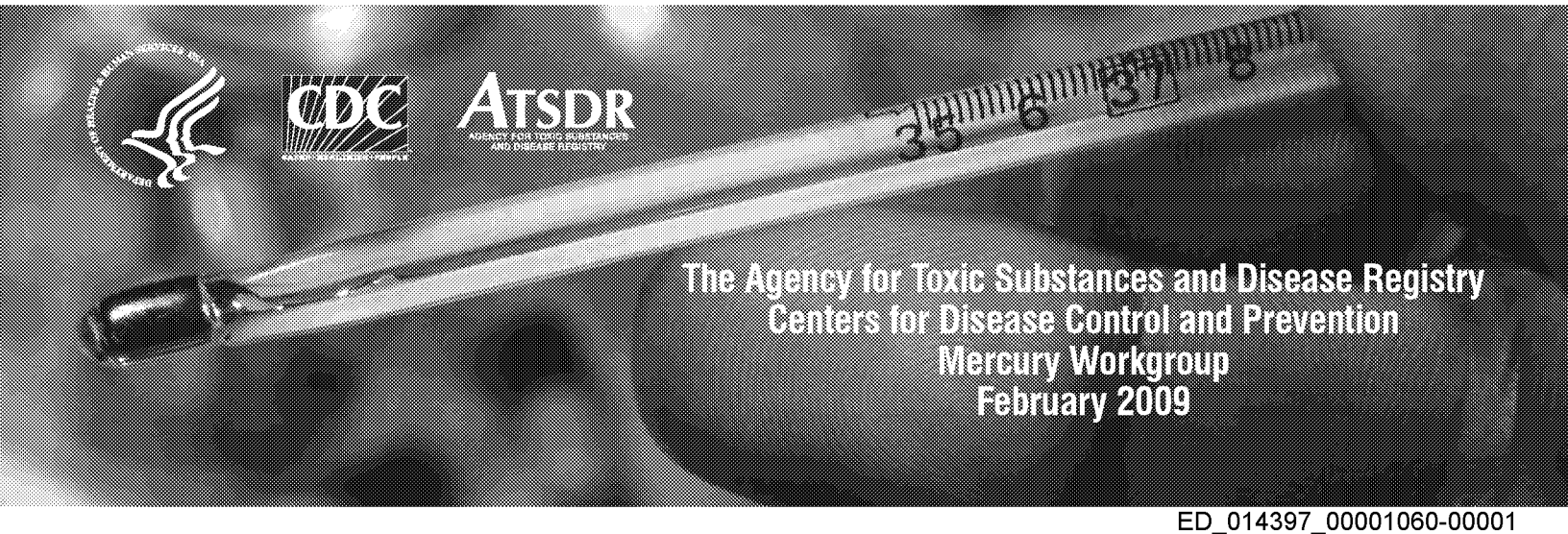
Prevedouros, Konstantinos, Ian T. Cousins, Robert C. Buck, and Stephen H. Korzeniowski. "Sources, Fate and Transport of Perfluorocarboxylates." *Environmental Science & Technology* 40, no. 1 (January 1, 2006): 32–44. [HYPERLINK "https://doi.org/10.1021/es0512475"].

[6] Cousins, Ian T., Gretta Goldenman, Dorte Herzke, Rainer Lohmann, Mark Miller, Carla A. Ng, Sharyle Patton, et al. "The Concept of Essential Use for Determining When Uses of PFASs Can Be Phased Out." *Environmental Science: Processes & Impacts* 21, no. 11 (November 13, 2019): 1803–15. [HYPERLINK "https://doi.org/10.1039/C9EM00163H"].



CHILDREN'S EXPOSURE to ELEMENTAL MERCURY

A NATIONAL REVIEW of EXPOSURE EVENTS



The Agency for Toxic Substances and Disease Registry
Centers for Disease Control and Prevention
Mercury Workgroup
February 2009

Children's Exposure to Elemental Mercury:
A National Review of Exposure Events

Reported by:
The Agency for Toxic Substances and Disease Registry and
Centers for Disease Control and Prevention
Mercury Workgroup

Richard E. Besser, M.D.

February 2009

Table of Contents

WORKGROUP MEMBERS

This report, titled "Children's Exposure to Elemental Mercury: A National Review of Exposure Events," was prepared by the Agency for Toxic Substances and Disease Registry (ATSDR) and the Centers for Disease Control and Prevention (CDC). The members of the internally convened workgroup have expertise in biomonitoring, environmental epidemiology, medicine, statistics, exposure investigation and assessment, state-led initiatives, toxicology, and management of mercury contamination in the environment.

1.1. Co-Chairs

Robin Lee, MPH
ATSDR/Division of Health Studies

Dan Middleton, MD, MPH
ATSDR/Division of Health Studies

1.2. Members

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2. ABBREVIATIONS, ACRONYMS, TERMINOLOGY

%	Percent
≤	Less than or equal to
<	Less than
AAPCC	American Association of Poison Control Centers
ATSDR	Agency for Toxic Substances and Disease Registry
°C	Celsius
CDC	Centers for Disease Control and Prevention
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (aka Superfund)
CI	Confidence Interval
CFL	Compact Florescent Lightbulb
EPA	U.S. Environmental Protection Agency
g/cm^3	Grams per Cubic Centimeter
g	Grams
HC	Health Consultation
HSEES	Hazardous Substances Emergency Events Surveillance
IDPH	Illinois Department of Public Health
LOD	Level of Detection
MDCH	Michigan Department of Community Health
ml	Milliliter
mm	Millimeter
n	Number
NHANES	National Health and Nutrition Examination Survey
NIOSH	National Institute for Occupational Safety and Health
NPL	National Priorities List (lists the 1,300 most polluted hazardous waste sites)
NRC	National Response Center
PEHSU	Pediatric Environmental Health Specialty Units
µg/g	Micrograms per gram
µg/L	Micrograms per Liter
$\mu g/m^3$	Micrograms per Cubic Meter

3. APPENDIX: TABLES, FIGURES, AND SUPPLEMENTAL MATERIAL

4. EXECUTIVE SUMMARY

4.1. Introduction

In Franklinville, New Jersey, an industrial building formerly used to manufacture mercury thermometers was renovated and converted in 2004 to a children's daycare facility [ATSDR 2007b]. Unfortunately, the renovated property was not cleaned up prior to renovation, leaving residual contamination with elemental mercury [ATSDR 2007b]. Such contamination can cause significant exposure to children or adults who are present. In these types of exposure events the persons exposed may require medical evaluation and biomonitoring. Congress directed the Agency for Toxic Substances and Disease Registry (ATSDR) to further investigate and characterize these exposures.

The Explanatory Statement to the Fiscal Year (FY) 2008 Appropriation for the Agency for Toxic Substances and Disease Registry stated the following:

> *From within the amount appropriated, ATSDR is expected to assess the extent of children's exposure to mercury from former industrial sites and other sources nationwide, and to issue a report of its findings 12 months after the date of enactment of this bill. (Consolidated Appropriations Act, 2008 Committee Print of the House Committee on Appropriations on H.R. 2764/Public Law 110-161, page 1278).*

This report was prepared by ATSDR in response to this request.

4.2. Background

Mercury occurs naturally in the environment and exists in several forms. Between 0.006 and 0.02 $\mu g/m^3$ have been reported in outdoor air [ATSDR 1999]. Elemental mercury, also known as metallic or liquid mercury, is a unique metal that forms a dense, silvery liquid at room temperature. The liquid can disperse and coalesces into small, shiny droplets. These unusual properties attract the interest of children, increasing their propensity to play with mercury [Azziz-Baumgartner et al. 2007; Lowry et al. 1999].

Liquid mercury has a relatively low vapor pressure (0.0085 mm mercury at 25°C) and volatilizes slowly at room temperature. Mercury vapor is readily absorbed by the lungs, making inhalation of elemental mercury the exposure route of greatest concern. The health effects that may result from mercury exposure vary with the magnitude, dose, and duration of exposure.

4.3. Objective

To address the Congressional directive, ATSDR in collaboration with the Centers for Disease Control and Prevention (CDC), formed the ATSDR\CDC Mercury Workgroup. The objectives of the workgroup were to:

1) identify the common sources of elemental mercury exposure in children; and
2) describe the location, demographics, and proportion of children exposed or potentially exposed to elemental mercury in the United States.

In this document, elemental mercury refers to metallic mercury, a silvery liquid that vaporizes slowly at room temperature. Specifically excluded from this report are mercury exposures from coal-burning facilities, dental amalgams, fish consumption, medical waste incinerators, and vaccines. These exclusions are necessary to focus the report on the elemental mercury exposure events that formed the impetus for the Congressional directive.

4.4. Methods

Information was sought on mercury-related events that were documented to expose (or potentially expose) children in the United States. A comprehensive review of these events was conducted to identify and quantify the most common and recent exposure sources and to describe the location, demographics, and proportion of children affected.

The data sources reviewed included an extensive list of federal, state, and regional programs that capture information on spills and other hazardous releases. Once the events were selected, the characteristics of each event (i.e., the source, location, and demographics of the children affected) were explored.

The various databases that contain information about specific childhood mercury exposures often contain relatively few details. To supplement the information from these data sources, a search of the published scientific literature was also conducted.

The Mercury Workgroup also reviewed a number of prevention initiatives and information resources for reducing mercury exposure. This information is provided in the Appendix as supplemental material.

4.5. Findings

Public health databases were reviewed for relevant information on elemental mercury-related exposure events. The information presented is from the five relevant sources: 1) ATSDR - Health Consultations and Emergency Response Calls, 2) ATSDR - Hazardous Substances Emergency Events Surveillance (HSEES), 3) U.S. Coast Guard - National Response Center (NRC) database, 4) American Association of Poison Control Centers (AAPCC) - National Poison Data System, and 5)

Association of Occupational and Environmental Clinics (AOEC) - Pediatric Environmental Health Specialty Units (PEHSU).

ATSDR - Health Consultations and Emergency Response Calls. During 2002 to 2007, 26 health consultations were produced for events that exposed or potentially exposed children to elemental mercury in air. Although not always mutually exclusive, the location of the exposure event was most frequently described as a home (46%; 12 of 26) or school (42%; 11 of 26). The source of these mercury exposures included mercury use or storage in schools, mercury release from broken thermometers or sphygmomanometers, off-gassing from flooring containing a mercury catalyst, and an unknown source.

ATSDR - Hazardous Substances Emergency Events Surveillance. From 2002 through 2006, there were 843 mercury related events, 409 were classified as potentially exposing children. Mercury events occurred most frequently in private households (75%; 307 of 409). The most frequent contributing cause of the event was human error (87%; 357 of 409). The human error category includes breaking of or dropping thermometers or other mercury-containing devices or equipment. The total number of people exposed was not captured, although 21 people (10 children) reported injuries or symptoms.

U.S. Coast Guard - National Response Center Database. The National Response Center receives between 25,000 and 30,000 reports of pollution incidents and response drills each year. Of the mercury incidents reported between 2002 and 2007, 113 were events in which children were potentially exposed. The amount of mercury released varied from less than 1 ml to approximately 1,893 ml.

AAPCC - National Poison Data System. Between 2002 and 2006, there were 6,396 calls made to Poison Control Centers regarding children's exposure to elemental mercury not associated with broken thermometers. During the same time periods there were 30,891 calls made to Poison Control Centers regarding children's exposure to mercury from broken thermometers. From 2002 to 2006, the calls for children exposed to mercury thermometers have decreased from 10,108 to 2,896. Most non-thermometer (93%; 5,966 of 6,396) and thermometer-related (98%; 30,287 of 30,891) calls were classified as being minimal to nontoxic in nature.

AOEC - *Pediatric Environmental Health Specialty Unit.* Between 2004 and 2007, 242 mercury exposure calls were made; 120 (50%) concerned potentially exposed boys, 93 (38%) concerned girls, and the sex of the remaining 29 (12%) was not identified. The majority of these calls concerned children less than 7 years old.

Literature Review. Ten published reports, described 13 mercury contamination events with approximately 1,393 exposed children between 1998 and 2004. When reported, the estimated amount of mercury spilled/released ranged from 9 to 701 ml. The largest releases typically occurred after children stole mercury from an industrial site (approximately 701 ml mercury released) or a school (30–40 ml mercury

released). In eight events a child obtained mercury by stealing. Mercury was stolen from a school in 6 of the 13 events (46%), once from a dental office (8%), and once from an industrial site (8%). When biologic specimens were collected to assess human exposure to mercury neither urine nor blood mercury levels correlated well with the presence or severity of symptoms [Cherry et al. 2002; Gattineni et al. 2007; Tominack et al. 2002].

4.6. Discussion and Conclusions

Review of the data sources and literature found three categories of exposure scenarios. The first two categories are scenarios in the home and those at school, two common locations for childhood elemental mercury exposures. The third category includes exposures at other locations, such as medical clinics and property that was not adequately remediated. The sources of exposure in the home include mercury-containing devices, cultural or ceremonial uses of mercury, intentionally heating elemental mercury, and unknowingly tracking mercury home from the workplace. The most common elemental mercury sources in schools are mercury stored in science laboratories, mercury found in broken instruments, and mercury brought to school from other locations. In addition, some gymnasium floors contain a mercury catalyst that can release mercury vapor into the air. Mercury exposures can also occur in medical facilities and buildings where mercury was previously used. Sources include prior mercury spills, mercury stored on abandoned property, and mercury found in medical or dental offices. In some cases, mercury is carried or tracked into multiple locations, making it difficult to identify the primary location where exposure first took place.

Regardless of exposure location, children are most frequently exposed to mercury when mercury is mishandled or when people improperly clean up spilled mercury. Exposure to small spills from broken thermometers represents the most frequent scenario. However, calls about this type of exposure are decreasing. Elevated mercury vapor levels have been documented, but demonstrable health effects are rarely reported after small mercury spills such as broken fever thermometers. Regardless, proper clean up of even small spills should occur.

Limitations. The demographics and proportion of U.S. children exposed is not directly quantifiable using the various data sources reviewed. Most data sources that collect information on the release of hazardous substances do not systematically collect information on the persons affected. Furthermore, the duplication and inconsistent reporting of the events between data sources and even within data sources make any estimate of the national incidence of mercury exposure to children unreliable.

Examples and Resources for Reducing Mercury Exposure. The review of prevention initiatives and information resources found that a number of federal and state-based initiatives affect the potential for childhood mercury exposures. Currently, there are 45 states with mercury initiatives. The supplemental material in the Appendix

describes ongoing federal and state initiatives that are examples of ways to reduce exposure to elemental mercury. Information sources are summarized and are useful to organizations or individuals seeking information on preventing mercury exposures, responding appropriately to environmental contamination, and evaluating and caring for exposed children.

Published case reports and case series often provide exposure and health outcome information but are limited by reporting bias, retrospective data collection, and imprecise estimates of exposure dose and duration. Despite their limitations, the data sources and literature reviewed in this report are the most current and best available data sources on acute exposures to mercury in the United States.

5. INTRODUCTION

5.1. Congressional Directive

In recent years, mercury contamination events have been documented at private residences or daycare centers that were converted from industrial facilities that used mercury. Residual contamination in these locations can result in significant exposure to people who are present and can be costly to clean [Baughman 2006; NJDEP 2008; SHP 2003].

One such event was reported in 2006 in Franklinville, New Jersey [ATSDR 2007b]. A building formerly used to manufacture mercury thermometers was renovated and converted to a daycare facility for children. Residual elemental mercury contamination on the property resulted in a mercury exposure event. Numerous children who spent time at the daycare required medical evaluation and biomonitoring.

Congress directed the Agency for Toxic Substances and Disease Registry (ATSDR) to further investigate and characterize these exposures. The Explanatory Statement to the Fiscal Year (FY) 2008 Appropriation for the Agency for Toxic Substances and Disease Registry (ATSDR) stated the following:

> *From within the amount appropriated, ATSDR is expected to assess the extent of children's exposure to mercury from former industrial sites and other sources nationwide, and to issue a report of its findings 12 months after the date of enactment of this bill. (Consolidated Appropriations Act, 2008 Committee Print of the House Committee on Appropriations on H.R. 2764/Public Law 110-161, page 1278)*

To address the Congressional directive, ATSDR in collaboration with the Centers for Disease Control and Prevention (CDC) formed the ATSDR\CDC Mercury Workgroup.

5.2. Objectives

The objectives of the Mercury Workgroup were to:

1) identify the exposure sources associated with elemental mercury exposure in children; and
2) describe the location, demographics, and proportion of children exposed or potentially exposed to elemental mercury in the United States.

The Mercury Workgroup reported on elemental mercury exposures that typically occur when children inhale mercury vapor related to:

- disposal or damage to mercury devices (e.g., thermometers or lightbulbs);
- off-gassing of mercury vapors from flooring materials;
- proximity to industrial sites or hazardous waste sites contaminated with mercury;
- reuse of industrial property contaminated with mercury;
- residential contamination caused by religious or cultural practices; and
- release of mercury found in school science laboratories or health care facilities.

The Mercury Workgroup did not review mercury exposures associated with coal-burning facilities, dental amalgams, fish consumption, medical waste incinerators, or thimerosal-containing vaccines. Nor did it focus on elemental mercury health effects.

6. BACKGROUND

6.1. Mercury Forms and Properties of Elemental Mercury

Mercury is a naturally occurring element in the earth's crust. It exists in the environment as the result of natural processes and human activities.

The three chemical forms are:

1) elemental mercury (also called liquid or metallic mercury);

2) inorganic mercury compounds, including common compounds formed from the monovalent and divalent cations of mercury (e.g., mercurous chloride, mercuric chloride, mercuric acetate, and mercuric sulfide); and

3) organic mercury compounds, most commonly found in the form of methylmercury or ethylmercury [ATSDR 1999; Clarkson 2002].

Elemental mercury is a unique metal that forms a dense, silvery liquid at room temperature (density = 13.534 g/cm^3). The liquid can disperse and coalesces into small, shiny droplets. These unusual properties attract the interest of children, increasing their propensity to play with mercury [Azziz-Baumgartner et al. 2007; Lowry et al. 1999]. Liquid mercury has a relatively low vapor pressure (0.0085 mm mercury at 25°C) and volatilizes slowly at room temperature. Indoor mercury spills that are not properly cleaned up can release mercury vapors into the air for weeks or even years [ATSDR 1999]. Heating mercury results in much higher, potentially lethal, airborne mercury concentrations, especially in indoor spaces [Putman and Madden 1972; Solis et al. 2000; Taueg et al. 1992].

6.2. Toxicokinetics of Elemental Mercury

Mercury vapor is readily absorbed by the lungs, making inhalation of elemental mercury the exposure route of greatest concern [Hursh et al. 1976].Although children may sometimes swallow elemental mercury, it is poorly absorbed in the normal gastrointestinal tract. In animal studies, less than 0.01% of the elemental mercury ingested was absorbed [WHO 1991]. Dermal absorption of elemental mercury is also a relatively minor exposure pathway. When human volunteers were exposed to mercury vapor, the estimated uptake rate through the skin was approximately 2% of the uptake rate through the lungs [Hursh et al. 1989].

After absorption, elemental mercury is distributed to most tissues, with the highest concentrations occurring in the kidney [Barregard et al. 1999; Hursh et al. 1976]. Elemental mercury is mostly oxidized to inorganic forms and excreted by the kidneys [Sandborgh-Englund et al. 1998]. Blood concentrations decline initially during a relatively rapid clearance phase, with a half-life of approximately 1–3 days. This rapid phase is followed by a slower clearance phase, with a half-life of 1–3 weeks [Barregard et al. 1992; Sandborgh-Englund et al. 1998]. Peak urine mercury levels can lag behind peak blood levels by days to a few weeks [Barregard et al. 1992]; thereafter, urinary mercury levels decline with a half-life of 1–3 months [Jonsson et al. 1999; Roels et al. 1991].

6.3. Elemental Mercury Exposure Pathways

Exposure to mercury occurs through a variety of pathways. These exposures result from spills and misuse of mercury in homes, schools, and other locations. Although some mercury-containing devices are becoming less common in the home, mercury is still found in a number of household items including: thermometers, barometers, thermostats, lightbulbs, electric switches, and natural gas regulators. Even the small amount of mercury in a typical thermometer (0.5 to 3.0 g mercury or 0.04 to 0.22 ml mercury) can create hazardous conditions if spilled indoors and improperly cleaned [Smart 1986; von Muhlendahl 1990]. For example, vacuuming can result in

additional dispersion of elemental mercury, which increases the inhalational hazard and spreads the contamination. The ATSDR Minimal Risk Levels for chronic mercury inhalation is 0.2 $\mu g/m^3$ [ATSDR 1999].

Some Caribbean religions and folk healers use mercury for religious or ceremonial purposes [Wendroff 2005]. The ceremonial uses of mercury include applying it to the skin, adding it to candles, or sprinkling it around the home. Elemental mercury is easily dispersed into fine beads that sink into carpets, furniture, cracks in the floor, or other porous materials (Figure 1a, 1b). Mercury tracked from room to room produces widespread contamination throughout the house. These practices can potentially expose practitioners and their children. Following indoor spills, mercury can persist for months and even years [Carpi and Chen 2001]. Therefore ceremonial use of mercury in the home could also expose future occupants and their children. Occasionally, mercury contamination is so extensive that adequate cleaning is not possible and the building must be demolished [Orloff et al. 1997].

Reports have indicated that children have been exposed to mercury vapors from polyurethane flooring materials in some schools [ATSDR 2003, 2004]. In addition, school science laboratories may store elemental mercury and various types of mercury-containing equipment, such as thermometers and barometers. Elemental mercury has unique physical properties that attract children. Older children may obtain mercury by scavenging from schools, abandoned buildings, or other locations. Children who take mercury home may play with it and share it with their friends, contaminating other homes.

Especially in the western United States, abandoned mines and precious metal recovery operations are sometimes extensively contaminated with elemental mercury. At such sites, large amounts of elemental mercury mixed in the soil can expose children who venture onto the site [Rytuba 2000].

Although children are not typically exposed to mercury in active workplaces, some former industrial facilities that used mercury are subsequently converted to residences or childcare facilities. Inadequate remediation of such properties can lead to significant exposure [ATSDR 1998, 2007b]. Current work sites can also pose a hazard if workers carry mercury home on their clothes and shoes, exposing other family members [Hudson et al. 1987].

6.4. Biomarkers of Elemental Mercury Exposure

After absorption, elemental mercury is converted to inorganic mercury and excreted in the urine. Therefore, urine levels provide the most appropriate assessment of elemental mercury exposure and are the easiest to interpret [ATSDR 1999]. Serial urine levels are sometimes used to ensure that exposure is not continuing.

The amount of mercury in blood is sometimes measured during the first 3 days after an exposure because blood mercury levels peak sooner than urine levels [ATSDR

1999]. However, the presence of organic mercury from an individual's diet complicates the interpretation of blood mercury levels [Clarkson 2002], and few commercial laboratories differentiate between the various mercury species in blood.

Mercury is also measurable in hair. However, these tests primarily measure organic mercury [Aposhian et al. 1992; ATSDR 2001c; Cianciola et al. 1997; Kingman et al. 1998], and are not useful for assessing recent exposures to elemental mercury.

6.5. Reference Levels in U.S. Children

The CDC's National Center for Health Statistics conducts the National Health and Nutrition Examination Survey (NHANES) to assess the health and nutrition status of the civilian, noninstitutionalized U.S. population. NHANES data provide mercury reference levels in U.S. children and markers of exposure for the general population. NHANES data are representative samples based on a complex multistage probability sampling design [CDC 2007].

Urine mercury levels were measured in participants aged 6 years and older in the 2003–2004 NHANES survey period. For children aged 6 to 11 years, the geometric mean[1] was 0.254 µg/L (95% confidence interval [CI]: 0.213–0.304) and 0.358 µg/L (95% CI: 0.313–0.408) for children 12 to 19 years of age [CDC 2005c, 2007]. Table 1 provides additional urine mercury reference levels.

In 2001–2002 NHANES measured blood mercury levels in young children (aged 1–5 years). The geometric mean was 0.32 µg/L (95% CI: 0.27–0.38), and the 95th percentile was 1.2 µg/L (95% CI 0.9–1.6) [CDC 2005c].

NHANES urine mercury reference levels are similar to background urinary mercury levels reported in German children [Link et al. 2007].

6.6. Overview on Health Effects of Elemental Mercury Exposure

The health effects that may result from mercury vary with the magnitude, dose, and duration of exposure. Children are more sensitive to mercury and thus at greater risk than adults from certain exposures [ATSDR 1999; Rogers et al. 2007]. Children breathe faster and have larger lung surface areas relative to body weight than adults, resulting in a greater dose of mercury per unit of body weight. Children are shorter in stature than adults and engage in activities such as crawling or playing on the floor. As a result, their breathing zones are closer to the floor, where mercury vapor levels

[1] The simple arithmetic mean is not suitable for representing "average" when observations are not normally distributed. The occurrence of a few high or low numbers could result in a perceived "average" that is not reflective of actual conditions. In such situations statisticians use the geometric mean as a more appropriate measure of central tendency.

are higher. The types of health effects are further described according to the duration of exposure (acute vs. chronic).

The health effects from inhaling very high concentrations of mercury are primarily respiratory in nature [ATSDR 1999; EPA 2002]. These health effects may include pneumonitis, bronchiolitis, pulmonary edema, and even death [ATSDR 1999; Solis et al. 2000; Taueg et al. 1992].

Exposure to mercury vapor (e.g., 10–100 $\mu g/m^3$) over prolonged time periods can cause neurobehavioral effects, including mood changes and tremors. Chronic exposure can also cause hypertension and autonomic nervous system dysfunction [WHO 2003]. Low urinary mercury levels (e.g., <5 µg/L urine) have not been associated with neurocognitive effects in children [Bellinger et al. 2006; DeRouen et al. 2006].

Mercury exposure is also associated with acrodynia (painful extremities), a rare syndrome believed to result from hypersensitivity to mercury [Caravati et al. 2008; von Muhlendahl 1990; Warkany 1966; Wossmann et al. 1999]. Acrodynia is more common among small children, who develop nonspecific symptoms such as leg cramps, irritability, and redness and peeling of skin on the hands, nose, and feet [Tunnessen et al. 1987]. Acrodynia was more common in the past when mercury-containing laxatives, teething powders, and diaper rinses were widely used [Tunnessen et al. 1987].

There is not always a correlation between exposure levels and health effects. In addition, while elevated mercury vapor levels have been documented, demonstrable health effects are rarely reported after small mercury spills such as broken fever thermometers. Additional health effects information is available in the ATSDR Mercury Toxicological Profile [ATSDR 1999] and in the World Health Organization Concise International Chemical Assessment Documents on mercury [WHO 2003].

7. METHODS

Information was sought on mercury-related events that were documented to expose (or potentially expose) children in the United States. A comprehensive review of these events was conducted to identify and quantify the most common and recent exposure sources and to describe the location, demographics, and proportion of children affected.

The Mercury Workgroup also reviewed a number of prevention initiatives and information resources. This information is provided in the Appendix as supplemental materials.

7.1. Data Sources

The data sources reviewed included an extensive list of federal, state, and regional programs that capture information on spills and other hazardous releases. Initially, a list of databases and public health entities that collect mercury-related health and exposure information was compiled (Table 2). Workgroup members then identified and contacted key personnel for each relevant data source.

Many of the data sources depend on individuals to report releases or spills to a regulatory authority. Information about the nature and extent of such releases is limited by the potential implications for remediation and legal liability. The findings section assesses and reports the limitations of each data source ("8. Findings—Data Sources").

7.2. Exposure Event Selection Criteria

Mercury-related events that were documented to expose (or potentially expose) children in the United States were obtained from each data source. The following guidelines were used to select relevant mercury releases and spills (exposure events) for this report.

First, the time period reviewed was generally between 2002 and 2007. Although this time frame represents the most current information available on exposure events, these dates were somewhat flexible to allow for differences in the data sources and completeness of the reported data. In some instances, data from a longer period of time were used to include pertinent events. The actual time period reviewed is reported for each data source.

Second, the event took place in the continental United States, Alaska, Hawaii, or Puerto Rico.

Lastly, the event exposed or potentially affected a child (or children) 18 years of age or younger. Although an attempt was made to query events in which children were 18 years of age or younger, these ages were somewhat flexible to allow for differences in the data sources and completeness of the reported data. If the data source did not contain information on the age of persons exposed or affected, the event location became the determining factor. That is, the event was included if it occurred at a location thought to be frequented by children (e.g., an elementary or secondary school, a daycare, or a private residence).

Once the events were selected, the characteristics of each event (i.e., the source, location, and demographics of the children affected) were explored. The reporting methodology differs among data sources, and the information available also differs in content and definition. In an attempt to obtain reasonably comparable mercury event characteristics, the following information was collected for each event when it was available:

- year and date of event,
- location of event (state, city),
- event location type (e.g., daycare),
- form of mercury released,
- amount of mercury released,
- number of children potentially exposed,
- the ages of affected children,
- estimated length of exposure,
- possible contributing causes of the release/spill,
- recorded mercury vapor levels, and
- blood or urine mercury levels.

The findings section provides a detailed description of the available data by data source ("8. Findings—Data Sources").

7.3. Literature Review

The various databases that contain information about specific childhood mercury exposures often contain relatively few details. To supplement the information from these data sources, a search of the published scientific literature was also conducted.

Literature searches were conducted in PubMed and the Web of Science for published reports of mercury exposures involving children. The searches were limited to exposures that occurred in the United States. The search terms included "elemental mercury," "metallic mercury," or "liquid mercury." Only publications between January 2002 and December 2007 were reviewed. Publications in which urine mercury levels in children were measured without documentation of an exposure event were omitted.

7.4. Presentation of Findings

Findings are presented in three major sections. The first section ("8. Findings—Data Sources") identifies the data sources, describes the data, and summarizes the applicable information. The second section ("9. Findings—Literature Review") includes results from the review of the published, scientific literature. The third section ("10. Findings—Exposure Scenarios") uses the information reported in the first two sections along with additional case reports to characterize typical exposure locations. Specific scenarios are included in this section to illustrate typical exposures at each location.

8. FINDINGS—DATA SOURCES

Public health databases were reviewed for relevant information on elemental mercury-related exposure events. The information presented is from the five relevant sources: 1) ATSDR - Health Consultations and Emergency Response Calls, 2) ATSDR - Hazardous Substances Emergency Events Surveillance, 3) U.S. Coast Guard - National Response Center Database, 4) American Association of Poison

Control Centers - National Poison Data System, and 5) Association of Occupational and Environmental Clinics - Pediatric Environmental Health Specialty Units.

Although they did not contain information relevant to this report, the three remaining databases are briefly described: 1) CDC - Clinical Information Service, 2) Environmental Protection Agency - Superfund Sites and the National Priorities List, 3) National Institute for Occupational Safety and Health - -Worker's Home Contamination Study.

8.1. ATSDR - Health Consultations and Emergency Response Calls

ATSDR is the lead federal public health agency for implementing the health provisions of the Comprehensive Environmental Response, Compensation, and Liability Act and its amendments. Under this act, ATSDR evaluates the public health impact of hazardous substances released into the environment. The evaluation of mercury-related events occurs in a number of different ways. ATSDR receives a number of inquiries regarding mercury exposure events. Although some inquiries are not systematically recorded, some are documented as ATSDR Health Consultations (HCs) and others are documented as emergency response calls.

The HCs were reviewed to identify events that document potential mercury exposure to children. Events were selected if there was a completed mercury exposure pathway in air and children were potentially exposed.

During the years 2002 to 2007, ATSDR and its state cooperative agreement partners produced health consultations for 26 events exposed or potentially exposed children to elemental mercury in air (Table 3). These events took place between 2001 and 2006. The degree of hazard posed by these exposures depended on factors such as the concentration of mercury in air and the frequency and duration of exposure. Of these 26 incidents, two children were potentially exposed in more than one location. Fourteen of the 26 (54%) were classified as public health hazards. Although not always mutually exclusive, the location of the exposure event was most frequently described as a home (46%; 12 of 26) or school (42%; 11 of 26). Two of the 26 events (8%) occurred at medical care facilities, one at a daycare center (4%), and one in a car (4%). The source of these mercury exposures included use or storage in schools, release from broken thermometers or sphygmomanometers, off-gassing from flooring containing a mercury catalyst, and an unknown source.

The estimated amount of mercury reported to be released in these 26 exposure events ranged from 9 to 700 ml. The maximum indoor air concentrations of mercury ranged from 0.05 $\mu g/m^3$ to greater than 92 $\mu g/m^3$. Biomonitoring was conducted for children considered exposed in 11 events. The mercury concentrations in blood ranged from below the level of detection (LOD) to 29 µg/L. The urine concentrations ranged from below the LOD to 18 µg/g creatinine. The LOD varied by event. The approximate time interval between exposure and urine collection for testing ranged from 6 to 20 days.

In addition to these HCs, emergency response calls are received from state and local health officials, environmental officials, health care providers, and the general public. From 2000 to 2007, ATSDR's emergency response staff responded to more than 3,000 such inquiries and 459 of them were about mercury events. The majority of the events occurred in residential settings (44%; 203 of 459) or in schools (13%; 60 of 459). These calls were most often made by private citizens (31%; 143 of 459); many calls concerned cleaning up mercury-related spills (38%; 175 of 459) or health-related questions about being exposed to mercury (35%; 159 of 459).

Given the relatively few mercury events documented by ATSDR HCs (n=26) compared to the number of mercury-related calls to ATSDR's emergency response staff (n=459), the HCs may not be representative of mercury events nationwide.

8.2. ATSDR - Hazardous Substances Emergency Events Surveillance

ATSDR developed the Hazardous Substances Emergency Events Surveillance (HSEES) system (www.atsdr.cdc.gov/HS/HSEES) to collect data on uncontrolled and/or illegal releases of any hazardous substance [ATSDR 2007a]. Releases of chemicals for more than 72 hours are considered chronic releases and are not captured by HSEES.

A number of U.S. state health departments report chemical releases to HSEES. The data collected include the type of release, the amount of chemical(s) released, the location of the event (private residence, school, etc.), information about any persons with symptoms or injuries ("victims"), and any possible contributing causes that are known. The number of persons exposed during a chemical release is not captured directly in HSEES. However, using victim data and additional information recorded as optional text, one can estimate the number of exposed persons.

The possible contributing causes for the release are categorized as equipment failure, human error, intentional or illegal release, and unknown cause. The human error category includes breaking of or dropping thermometers or other mercury-containing devices or equipment. Intentional or illegal releases include events in which children reportedly played with mercury.

The HSEES events from 2002 through 2006 were included in this compilation if children were potentially exposed to elemental mercury (unpublished HSEES data) (Table 4). Children were defined as persons less than or equal to 19 years of age. Events in which releases were only threatened were omitted. Events were selected if they took place at a private residence, at an elementary or secondary school, or at another location for which children were documented as possibly exposed, injured, or had symptoms associated with mercury exposure.

The HSEES database contained 843 mercury events from 41,709 total events in which hazardous substances were reported to be released from January 2002 through

December 2006. Mercury was the only toxicant released in 824 of these events; the remaining 19 mercury events included the release of at least one other hazardous substance. Approximately half of the total mercury events identified (n=409) were classified as potentially exposing children. All 409 events potentially affecting children were mercury only events.

These events were reported from 17 states; only 12 states participated during the entire time period from 2002 through 2006. The remaining states participated for either 2 or 4 years (Table 4).

The 409 events potentially affecting children were most frequently classified as nonvolatilization or spill only events (88%; 360 of 409). Volatilization of mercury was noted in 6 of the 409 events (2%) as air only and in 40 events (10%) as combined spill and air releases. A fire was noted in one of the 409 events (<1%). Although liquid mercury has a relatively low vapor pressure and volatilizes slowly at room temperature, some volatilization was likely in some or all of the events described as spill only. Mercury events occurred most frequently in private households (75%; 307 of 409). The most frequent contributing cause of the event was human error (87%; 357 of 409).

Evacuations were ordered in 68 of the 409 events (17%). The median number evacuated per event was 20 people, with a range from 1 to 1,505 people (data not shown). The total number of people exposed during these 409 events was not captured in HSEES. Five children had elevated levels of mercury in blood/urine. Mercury biomarkers are not routinely reported to HSEES.

Limitations do exist in using HSEES data to report on elemental mercury exposures to children. The HSEES data source is intended to build capacity in state health departments for surveillance of acute releases of hazardous substances and to initiate or improve appropriate prevention activities. HSEES was not designed to enumerate and characterize mercury exposure events affecting children. Information on age is only captured in HSEES if the person reports a symptom or requires medical follow-up; for this reason, HSEES data are likely to underestimate the number of children exposed. The magnitude of exposure is difficult to determine given that the amount of mercury released or spilled is often reported as a range rather than a specific quantity. Therefore, a reliable calculation of the average amount of mercury released is not possible. Lastly, the reporting of mercury-related events to HSEES is uneven across the participating states. States with mercury exposure prevention initiatives may report more mercury-related events than states without mercury initiatives (see Supplemental Material) [MDEQ 2007; MPCA 2006]. For example, the emphasis that Michigan and Minnesota placed on preventing mercury exposure may have increased the awareness and reporting of such events. Lastly, HSEES reports acute releases; incidents in which mercury exposure continued for an extended period of time are not included.

8.3. U.S. Coast Guard - National Response Center Database

Under federal law, the release or spill of one pound (33 ml, approximately 2 tablespoons) or more of mercury into the environment must be reported to the federal government (40 Code of Federal Regulations [CFR] 302.4). The primary contact for reporting these events is the National Response Center (NRC), operated by the U.S. Coast Guard for the National Response Team established under the National Contingency Plan for Oil and Hazardous Substances Releases (40 CFR 300) (www.nrc.uscg.mil/nrcback.html).

NRC receives between 25,000 and 30,000 reports of pollution incidents and response drills each year. To identify events for this report, data for the years 2002 through 2007 were downloaded from the NRC Web site and queried using statistical software SAS 9.1. Mercury-related events were identified by a) a Chemical Abstracts Service registry number recorded as "007439-97-6" (denoting mercury was released) or b) the word "mercury" reported in the name of the material released, in the description of the incident, in the description of remedial actions, or in the additional information provided. A total of 825 events met this definition between 2002 and 2007 (Table 5). Actual exposures may have taken place prior to the year in which the spill was reported.

To assess the number of events in which children were potentially exposed, two additional searches were conducted on the 825 mercury events. First, school and daycare settings were always selected as locations where children were potentially exposed by searching for the terms "school" or "daycare" in the incident description, in the location of the incident, or in the additional information field. Second, the description of the incident and the additional information fields were queried for a series of 11 words or parts of words that represent terms commonly used to describe children (i.e., infant, toddler, child, adolescent). Of the mercury incidents reported over the 6-year period, 113 (14%; 113 of 825) were events in which children were potentially exposed.

Table 5 summarizes the number of mercury events and the number of such events in which children were likely exposed. The location of the incident was not reported in 45 (40%) of the 113 events in which children were likely exposed. A few events noted more than one exposure location. When only a street address was given, the category "other" was used to describe the event location (Table 6).

To compare the amounts of mercury released in different events, the quantity was expressed as ml of mercury. The amount of mercury released varied from less than 1 ml to approximately 1,900 ml. For example, a fire occurred in one event, and the event released approximately 200 ml of mercury at a school. No information was provided on whether children were present during the release.

Among the 113 events that potentially exposed children, five people were injured and five people were hospitalized. Whether the five persons injured were the same five

persons who were hospitalized is unclear. The states reporting the most incidents that potentially exposed children were Kentucky, Michigan, Mississippi, and Ohio (Figure 2). In 27 events persons were evacuated. These evacuations took place in a number of locations, including homes and schools.

NRC reports contain the initial conditions of each event and are self reported, often by the spiller. Details often are not known or not volunteered in these initial reports, which results in reporting errors and missing information. Furthermore, mercury spills that draw media attention and state-based mercury initiatives may result in increased and more thorough reporting. The type of mercury is not always specified, leading to potential misclassification of mercury exposures. Since the NRC does not systematically collect the age of persons exposed, the information on children was only present when volunteered. Any analysis of these events is limited by these factors.

8.4. American Association of Poison Control Centers - National Poison Data System

The American Association of Poison Control Centers (AAPCC) National Poison Data System represents information uploaded in near real-time from 61 of 62 U.S. Poison Control Centers (www.aapcc.org/dnn/NPDS/tabid/65/Default.aspx). Reporting is passive and voluntary, occurring when a caller reports a known or suspected chemical exposure. Poison Control Center specialists collect basic demographic data, information about the chemical agent and exposure route, and any reported clinical effects associated with the case. Depending on the nature of the call, a specialist chooses from a pre-established list of chemical agents and selects signs and symptoms from a list of 131 clinical effects. AAPCC classifies persons 19 years of age and younger as children.

Between 2002 and 2006 the AAPCC received approximately 12 million calls. Of these total calls 15,739 were mercury-related calls (Table 7) that were not associated with broken thermometers. The majority of these calls concerned elemental mercury exposure events (91%; 14,378 of 15,739). The calls concerning children (n=6,396) made up 44% (6,396 of 14,378) of the elemental mercury calls. Although many calls specified dermal exposure or ingestion, such exposures also included the potential for inhalational exposure. Michigan and Illinois recorded the most calls to AAPCC for potential childhood mercury exposures (Figure 2).

AAPCC also receives a large number of calls regarding broken mercury thermometers. The types of mercury thermometers recorded include: general formulation, basal, high/low, oral fever, baby rectal, yellow back glass, and mercury metal. Since 2002, the calls for mercury thermometer exposures have continued to decrease (Table 8). In 2002, there were 10,108 calls regarding children exposed to mercury thermometers. The number of calls decreased to 2,896 in 2006.

Each year between 2002 and 2005, 93% or more of the non-thermometer-related mercury exposures in children were coded as unintentional. In 2006, the percentage of unintentional exposures dropped to 80% (758 of 948). This decrease probably resulted from a single incident in which AAPCC received 157 calls regarding adolescent children intentionally exposed to elemental mercury. All 157 calls were made on the same day from the same state.

AAPCC also records the anticipated health effects of the exposure. Effects are categorized as minor, moderate, major, not-followed, and unable to follow [Bronstein et al. 2007]. AAPCC describes minor effects as those with minimally bothersome symptoms and generally resolve rapidly. Moderate effects are more pronounced or more systemic in nature. Major effects as those that may be life-threatening or result in disability or disfigurement. Calls are not followed when the exposure was minimal to nontoxic in nature, the amount of the contaminant released was insignificant, or the route of exposure was unlikely to result in a clinical effect. Between 2002 and 2006, most non-thermometer (93%; 5,966 of 6,396) and thermometer (98%; 30,287 of 30,891)-related calls were reported as not-followed. Five of the 6,396 calls (<1%) regarding children were about events that may have had a major effect. All five calls were non-thermometer-related. No major effects were reported among mercury thermometer-related calls.

A strength of the AAPCC data is that calls are classified as those representing an actual human exposure event or classified as other calls, such as those seeking only information. The limitations of the data relate to the passive and incomplete nature of the reporting and the general lack of environmental or human exposure monitoring. In addition, how many of the calls report separate exposure events is unclear; for example, a school-based exposure may prompt a number of concerned parents to call the AAPCC. Media attention regarding a mercury exposure event and state-based mercury initiatives (see Supplemental Material) probably influence public awareness and the reporting of mercury events to the AAPCC.

8.5. Association of Occupational and Environmental Clinics - Pediatric Environmental Health Specialty Units

The Association of Occupational and Environmental Clinics maintains the network of Pediatric Environmental Health Specialty Units (PEHSU) to provide consultation to health care professionals and parents for environmental health concerns affecting children and their families (www.aoec.org/PEHSU.htm). Eleven of the 13 PEHSU clinics are located in the United States.

Prior to 2004, the PEHSU consultation data were not easily queried. Therefore, only events recorded for the period from April 2004 through September 2007 were queried. The database does not differentiate among calls about elemental, inorganic, and organic mercury. The database includes age, gender, date of call, and PEHSU region. Of the 2,910 calls to PEHSU between 2004 and 2007, 242 were mercury exposure calls. One hundred twenty (50%) concerned potentially exposed boys, 93

(38%) concerned girls, and the sex of the remaining 29 (12%) was not identified. The age of the child was recorded for 225 calls; the majority of these calls concerned children less than 7 years old (Figure 3). The larger percentage of calls concerning younger children may result from the PEHSU focus on young children.

Since April 2006, the database also has included the role of the caller (parent, physician, etc.) and the exposure location, identified as daycare, home, public area, school, waste site, or unknown. PEHSU received 145 calls during the 18-month period from April 2006 through September 2007. In 108 of the 145 calls (74%), the parent of the potentially exposed child made the call. The most common exposure locations identified were homes and daycare facilities (Figure 4).

These data are limited by passive and incomplete reporting and the general lack of environmental or human exposure monitoring data. In addition, how many of these calls may pertain to the same event is unclear. Media attention regarding a mercury exposure event and the implementation of state-based mercury initiatives (see Supplemental Material) are likely to influence public awareness and the reporting of mercury events to PEHSU.

8.6. CDC - Clinical Information Service

CDC's National Center for Health Marketing collects information from calls made to the agency's consolidated call center (1-800-CDC-INFO), a service that delivers health information to consumers, health care providers, and other professionals (www.emergency.cdc.gov/coca/800cdcinfo.asp). The information collected is limited to the question asked and the standardized (prepared) answer provided. Detailed information about the specifics of the call is not collected. Also, more than one prepared answer is given to a caller when more than one issue is raised, and each of these question/answer combinations is counted individually.

No information is recorded on the number of persons potentially affected by the event that led to the call. Overall, the CDC-INFO data were not sufficient to characterize the source, location, and distribution of mercury exposures. Therefore, these data were not considered further in this report.

8.7. Environmental Protection Agency - Superfund Sites and the National Priorities List

U.S. Environmental Protection Agency (EPA) is a federal agency that conducts environmental science, research, education, and site assessment efforts. The mission of the EPA is to protect human health and welfare and the environment. Two databases related to the EPA Superfund program were considered for obtaining mercury event information for this report: the Superfund Information System site (http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm); and the National Priority List (NPL) search site (http://www.epa.gov/superfund/sites/query/advquery.htm). Both

databases contain information about specific sites assessed by the Superfund program.

The data on sites containing mercury in various media are available by site name, location, and NPL status. The information available includes an assessment regarding whether human exposure occurred and whether the exposure was contained. The above databases provide no quantifiable information on the amount of mercury released or the number of children potentially exposed. In a proportion of these sites, linking site related data from EPA and other agencies (e.g., ATSDR) might provide additional information. This linking was not feasible for this report, given the required cost in time and resources. Therefore, neither EPA database was considered further in this report.

8.8. National Institute for Occupational Safety and Health - Worker's Home Contamination Study

The mission of the National Institute for Occupational Safety and Health (NIOSH) is to protect worker health and safety. Thus, the majority of NIOSH work concerns adult exposures in the workplace. However, exposure data related to children are occasionally included if the workplace is frequented by children (e.g., schools and some health care clinics).

In addition, the actions of adult workers may affect the exposure and health of children they encounter outside the workplace. In 1995, NIOSH published a report to Congress on the contamination of workers' homes [NIOSH 1995]. This report also summarized the information available on the exposure of workers' children to mercury. In this report, the airborne concentration of mercury in the homes of workers ranged from 0.02 $\mu g/m^3$ to 50 $\mu g/m^3$. Although potentially relevant, the information in this report predates the time period reviewed by the workgroup (2002–2007) and does not meet the selection criteria for this report. Therefore, it was not considered further in this report.

9. FINDINGS—LITERATURE REVIEW

During the years 2002 to 2007, 10 published reports met the criteria for inclusion described in the methods section (7.3. Literature Review) (Table 9) [Azziz-Baumgartner et al. 2007; Baughman 2006; CDC 2005a, b; Cherry et al. 2002; CNN 2003; Gattineni et al. 2007; Gordon 2004; Hryhorczuk et al. 2006; Johnson 2004; Tominack et al. 2002]

These 10 publications reported 13 events that exposed approximately 1,393 children between 1998 and 2004 (Table 9). The year of the exposure was not reported for two of these events. The children exposed ranged in age from 2 to 18 years old. Exposures took place in homes, cars, schools, and school buses. In eight events a child obtained mercury by stealing. Mercury was stolen from a school in 6 of the 13

events (46%), once from a dental office (8%), and once from an industrial site (8%). The mercury was subsequently dispersed or sold to other children. When reported, the estimated amount of mercury spilled/released ranged from 9 to 701 ml. The events reporting the largest releases typically occurred after children stole mercury from an industrial site (approximately 701 ml of mercury released) or a school (30–40 ml of mercury released). When mercury was taken from a school, children typically played with the material at school and then at home, producing exposures in multiple locations.

In four additional reports, the exposure resulted from mercury found in the home. The sources of mercury included mercury-containing devices, prior spills, and mercury stored in the home. The largest potential source for home-based exposure was mercury spills from gas regulators. One publication estimated that mercury was spilled in 1,363 homes [Hryhorczuk et al. 2006]. Although many children were likely exposed, information is not available to determine how many children were actually exposed in these 1,363 homes.

Although the ages of the children exposed ranged from 2 to 18 years old, adolescent youth obtained mercury more frequently than other age groups. Depending upon clinical symptoms and the availability of laboratory tests, many of these children were tested for biomarkers of inorganic mercury exposure. The results ranged from less than 0.20 to greater than 1,000 µg/L in urine and from less than 4 to 295 µg/L in blood. Neither urine nor blood mercury levels correlate well with the presence or severity of symptoms [Cherry et al. 2002; Gattineni et al. 2007; Tominack et al. 2002].

10. FINDINGS—EXPOSURE SCENARIOS

To further describe the types of elemental mercury exposures that occur, three categories of exposure scenarios are presented. The intent of these scenarios is to illustrate the nature and public health impact of these events. Each scenario describes the source of exposure and provides additional information about the number of children affected. Some of these scenarios also illustrate how nonspecific symptoms combined with an environmental exposure history can help medical providers identify mercury exposures.

The first two categories are scenarios in the home and those at school, two common locations for childhood elemental mercury exposures. The third category includes exposures at other locations, such as medical clinics and property that was not adequately remediated. In some scenarios, elemental mercury is carried or tracked to multiple locations, making the primary exposure location difficult to specify.

These cases are examples of exposure scenarios that have occurred. The characteristics of individual exposure scenarios and associated health outcomes are not generalizable.

10.1. Exposure at Home

The sources of exposure in the home include mercury-containing devices, cultural or ceremonial uses of mercury, intentionally heating elemental mercury, and unknowingly tracking mercury home from the workplace. These examples are illustrated in the scenarios below.

Mercury-Containing Devices. Mercury exposure most commonly results from spills associated with broken thermometers, barometers, and other medical or scientific instruments used in the home. The most common exposure scenario involves mercury from broken thermometers. In the vast majority of such cases, the reported mercury vapor levels are low. Baughman [2006] reported that broken mercury thermometers rarely result in mercury vapor levels above 1 $\mu g/m^3$. It is important to clean up all such releases properly [Chrysochoou et al. 2003].

In a Swiss example, an 11-month-old infant had a medical evaluation for nonspecific symptoms, including restlessness, swollen hands and feet (with skin desquamation), profuse sweating, and repeated biting of objects or his own hands [Chrysochoou et al. 2003]. During the following 3 months, the infant failed to thrive and developed tachycardia and arterial hypertension. After hospitalization and an extensive medical evaluation, the parents were asked about mercury exposure. The parents confirmed that 4 weeks prior to the initial onset of symptoms a broken thermometer had spilled mercury onto a carpet and was subsequently vacuumed. Based on the symptoms, physical findings, and environmental exposure history, acrodynia was diagnosed. Over time the child's symptoms resolved and his growth and development returned to normal.

In a similar incident, a 9-year-old boy presented to a hospital with lethargy, limb pain, and unsteadiness [Rennie et al. 1999]. The child's physical examination showed mild facial weakness, areflexia, ataxia, and impaired sensation. He also developed hypertension. An investigation revealed that 3 months earlier the boy dismantled a mercury-containing sphygmomanometer in his bedroom and spilled mercury onto his bed and carpet. Although the amounts vary, sphygmomanometers typically contain 11 ml of mercury [Caravati et al. 2008]. Upon discovery of the mercury spill, his parents unsuccessfully attempted to clean it up by vacuuming. Subsequently, officials from the health department had to remove the bedding, carpets, and clothing from the room. A mercury vapor absorbing filter system was used in the bedroom for 3 months to remove residual mercury vapors. Over the next 6 months, the child slowly returned to this premorbid state.

Reports have been made of other elemental mercury exposure sources in the home, although these are less frequently encountered. Prior to 1961, most residential natural gas meters and pressure regulators were placed inside homes in some parts of the United States. Each gas regulator contained about 10 ml of mercury. After 1961, alternative technology became available and the industry began placing regulators outdoors. As a result, gas utility companies began relocating meters and pressure

regulators to locations outside the residence during the 1980s. In 2000, a homeowner near Chicago discovered mercury in the house's basement after the gas meter and regulator were relocated. This homeowner called the regional poison control center, initiating a response that eventually involved 2 states, 4 natural gas companies, 6 state agencies, 2 federal agencies, and 500,000 homes and businesses [ATSDR 2001a; Hryhorczuk et al. 2006]. The mercury was most likely spilled in the homes during relocation of the regulator to an outdoor location.

To assess the potential for other mercury spills related to the relocation of these gas regulators, a taskforce was formed with representatives from federal, state, and local public health agencies, as well as local government, medical care facilities, and three utility companies. The taskforce developed protocols to evaluate homes and characterize the threat. If data indicated that concentrations in the homes exceeded 1 $\mu g/m^3$, cleanup was initiated and residents were offered free clinical evaluations. If the concentration exceeded 10 $\mu g/m^3$, the occupants were offered relocation (pending cleanup) and urged to seek clinical evaluations [ATSDR 2001a].

According to one analysis completed after the response was over, the likelihood of residential mercury contamination exceeding the cleanup level after gas regulator removal ranged from 0.9/1,000 homes to 4.3/1,000 homes and varied by the gas company [Hryhorczuk et al. 2006]. This response has provided a template for similar problems in other metropolitan areas in recent years. This response also provided the basis for a field operations guide later developed by EPA.

Cultural or Ceremonial Uses. Some practitioners of certain Caribbean and Latin American religions, such as Voodoo, Santeria, Palo, and Espiritismo, use mercury ceremonially [EPA 2002; Johnson 1999; Newby et al. 2006; Wendroff 2005; Zayas and Ozuah 1996]. Ceremonial uses of mercury include applying it to the skin, adding it to candles, or sprinkling it around the home. These practices can potentially expose practitioners and their families. Because mercury contamination in the home can persist for years, ceremonial use of mercury in the home could expose future occupants and their children, contributing to health disparities in these populations.

Previous reports document the ceremonial use of mercury in neighborhoods whose residents are largely Hispanic [JSI 2003; Ozuah et al. 2003; Rogers et al. 2008; Rogers et al. 2007; Zayas and Ozuah 1996]. The John Snow, Inc. Center for Environmental Health Studies [2003] reported a survey of 898 persons, most of whom had Latino or Caribbean backgrounds. In this survey, 344 of the 898 people (38%) reported that they used or knew someone who used mercury for religious, spiritual, or health purposes. Garetano et al. [2008] found that mercury vapor levels were higher among residential common areas belonging to communities likely to use mercury for cultural practices than control areas where cultural mercury use is uncommon. However, all mercury vapor levels observed by Garetano et al. [2008] were below the ATSDR minimum risk level for chronic inhalation of metallic mercury [ATSDR 1999]. An exposure assessment by Rogers et al. [2007] tested the urine mercury levels of 306 children who lived in an area where elemental mercury

was commonly sold for ritualistic use. Although no relationship between ritualistic use and mercury exposure was evident, Rogers et al. [2007] concluded that potential health hazards remain when mercury is readily available. In a similar study, urine mercury levels were measured in 100 children that resided in an area where elemental mercury was commonly sold for religious practices. Five percent of these children had urine mercury levels above 5 μg/L [Ozuah et al. 2003; Zayas and Ozuah 1996].

Heating Elemental Mercury. On rare occasions, there have been reports of heating elemental mercury in the home. As noted previously, heating mercury results in much higher (potentially lethal) concentrations in air, especially in enclosed spaces such as a home [Putman and Madden 1972; Solis et al. 2000; Taueg et al. 1992].

In one published report, six children were exposed to mercury vapor when the parents attempted to extract gold ore while heating elemental mercury in a poorly ventilated kitchen [Solis et al. 2000]. All six children had elevated urinary mercury levels (range 45 – 575 μg/L). The two children in the kitchen were exposed to the highest mercury vapor levels. These two children developed respiratory symptoms within a few hours and were thought to have pneumonia until the environmental exposure history was obtained. One child died of respiratory failure and the other child recovered.

From the Workplace to the Home. The NIOSH [1995] Worker's Home Contamination Study found that airborne mercury concentrations in the homes of workers ranged from 0.02 $\mu g/m^3$ to 50 $\mu g/m^3$. The ATSDR recommended limit in the breathing zone of a home after an elemental mercury spill is <1 $\mu g/ m^3$ [ATSDR 2001a]. Although the NIOSH study predates the time period analyzed for the current report, the findings suggest that workers can inadvertently track mercury from the workplace into the home.

10.2. Exposure at School

The most common elemental mercury sources in schools are mercury stored in science laboratories, mercury found in broken instruments, and mercury brought to school from other locations. In addition, some gymnasium floors contain a mercury catalyst that can release mercury vapor into the air. Case reports to illustrate these two scenarios are presented below.

Student Misuse of Mercury. During the winter of 2004, 854 students at a middle school in Nevada were exposed to elemental mercury [Azziz-Baumgartner et al. 2007; Burgess 2007]. A student found a container of mercury in a storage shed and took it home for several weeks. The student subsequently brought approximately 60 ml of the mercury to school, where several students played with it (e.g., threw it at each other, rolled it on the floor).

Only one third of the 60 ml of mercury was recovered. Mercury vapor levels in the school were highest near the locker rooms (50 $\mu g/m^3$). Indoor mercury vapor levels were higher than background levels measured in other Nevada buildings (0.010–0.040 $\mu g/m^3$) Of the 854 students potentially exposed, 200 completed an exposure history and provided urine samples. In general, the creatinine-adjusted urine mercury levels were below the Azziz-Baumgartner et al. [2007] reported comparison value (3.99 µg/L). The mean urine mercury level for all tested students was 0.36 µg/L (range 0.14–11.4 µg/L).

Students who reported exposure to the mercury (n=66) had significantly higher urine mercury levels than those who did not. Those who touched the mercury and/or got it on their clothes (n=64) also had significantly higher urine mercury levels than those who did not. Self-reported symptoms were rare and no students required emergency medical treatment.

Mercury Vapors from School Flooring. In most situations, children are exposed to elemental mercury as a result of misuse or mishandling of mercury or mercury-containing devices. However, from the 1960s to the 1980s, many schools throughout the United States installed synthetic floors that contained a mercury catalyst. One manufacturer claimed to have installed more than 25 million pounds of polyurethane flooring over the past 40 years. A mercury-containing catalyst was used in the polyurethane formulation that formed the floor covering; the finished product typically contained 0.1% to 0.2% mercury [ATSDR 2003]. These surfaces slowly release elemental mercury vapor, particularly from damaged areas. State health departments in Ohio [ATSDR 2003], Michigan, and Oregon [ATSDR 2003, 2004, 2006] performed initial public health investigations. The airborne concentrations of mercury in gymnasium settings vary. One school district reported mercury vapor from 0.79 to 1.6 $\mu g/m^3$ [ATSDR 2003]. Another school reported 0.042 to 0.050 $\mu g/m^3$ in the breathing zone [ATSDR 2004]. The variation is likely a factor of many attributes, including the environmental sampling equipment used, the size of the floor, relative damage to the flooring material, and ventilation.

10.3. Exposures in Other Locations

Mercury exposures can also occur in medical facilities and buildings where mercury was previously used. Sources include prior mercury spills, mercury stored on abandoned property, and mercury found in medical or dental offices. In some cases, mercury is carried or tracked into multiple locations, making a primary exposure location difficult to identify.

Prior Industrial Mercury Contamination. In most situations the reuse of industrial property does not result in childhood mercury exposure. However, an increase in the redevelopment of industrial property for other uses increases the chance of this scenario occurring in the future.

One such exposure scenario occurred in Hoboken, New Jersey [Orloff et al. 1997]. A building that was formerly used to manufacture mercury vapor lamps was converted to private condominiums. After moving into the building, residents reported seeing drops of mercury on their oven and kitchen countertops. Investigations revealed pools of mercury in the subflooring and corresponding elevated indoor air mercury levels throughout the building.

Investigators measured the urinary mercury concentrations of 29 residents of the building, 6 of whom were children under the age of 9 years old. The urine levels ranged from 4.8 to 133 µg/g creatinine. All occupants of the building and their uncontaminated possessions were relocated. Because of the extensive mercury contamination, the decontamination efforts were unsuccessful and the building was eventually demolished.

A similar situation occurred in a Franklinville, New Jersey, daycare facility opened in 2004. The daycare facility was located in a building that previously manufactured mercury-containing thermometers. The daycare center was closed in 2006 after environmental samples from areas occupied by children revealed elevated levels of elemental mercury in wipe samples (<0.02 to 0.25 µg/wipe) and in air samples (7.0 to 11.4 $\mu g/m^3$) [ATSDR 2007b].

After the daycare closed, federal and state agencies tested urine samples from 91 children and 13 staff members for mercury. A value of 5 µg/g creatinine was used for comparison purposes. Approximately one third of the children had a urine mercury level greater than the comparison value at the initial round of screening. Serial testing confirmed that the elevated urine mercury levels decreased over time to levels below the comparison value. This evidence indicated that the mercury exposure pathway was interrupted following the daycare's closure. The medical records of 22 of the participants who provided urine samples were reviewed. There was no evidence of mercury related health effects in the medical records of 21 of the 22 participants. For one child, the medical records showed some evidence of conditions potentially related, but not specific for, mercury exposure. This child's health conditions resolved several months after enrollment ended [ATSDR 2007b].

In addition to being exposed by the reuse of inadequately remediated industrial property, children have been exposed to elemental mercury stored on abandoned industrial property. The following is an example in which children scavenged elemental mercury from an old industrial site. This scenario also shows that the three location-based exposure categories are not mutually exclusive.

Two teenagers in Texarkana, Arkansas, removed a large amount of mercury from an abandoned neon sign plant [Lowry et al. 1999]. The mercury was estimated to weigh between 23 and 100 pounds (770 to 3,300 ml). One of the teenagers took mercury home and gave some of it to other children. Health officials investigating this incident found mercury contamination in 12 residences, a convenience store, and a school classroom. Residents of several highly contaminated homes were relocated

during remediation. One house and an apartment were so contaminated that remediation was not possible. Both structures were demolished. For persons who had both a urinary and blood mercury test, initial urinary concentrations ranged as high 66.6 μg/g creatinine, and blood mercury concentrations ranged as high as 104 μg/L. Neurobehavioral assessment of the eight exposed individuals failed to establish a relationship between mercury exposures and test results.

Mercury-Containing Medical Equipment. Mishandling of mercury and mercury-containing medical equipment can occur in medical and dental offices. In one such example, mercury was spilled from a sphygmomanometer [ATSDR 2001b]. A patient who observed the attempted cleanup reported the incident to the Poison Control Center. The state health department and EPA responded, measuring breathing zone concentrations of mercury between 45 and 50 $\mu g/m^3$ in some areas. Visible beads and small pools of mercury were also observed in the clinic, which served both adults and children. Patients and staff were evacuated from the contaminated areas, and a professional environmental contractor was hired to carry out remedial activities.

11. LIMITATIONS

The information available on childhood mercury exposures varies among the data sources reviewed for this report. As noted previously, each data source contains its own limitations. These data sources were designed to document hazardous releases of toxic chemicals; information on children who were potentially exposed is not routinely collected. Furthermore, the duplication and inconsistent reporting of events between data sources and even within data sources (e.g., among states reporting to HSEES) make any estimate of the national incidence of mercury exposure to children unreliable.

Concerns regarding personal responsibility for causing a spill or having to clean up a spill may influence the quality and completeness of the information reported. Spills in private residences may be under reported because the residents are unaware of the health hazard and the need to report spills more than 1 pound (33 ml, approximately 2 tablespoons) to the NRC. Published case reports and case series often provide exposure and health outcome information but are limited by reporting bias, retrospective data collection, and imprecise estimates of exposure dose and duration. For these reasons, the frequencies described are not generalizable. In addition, the published literature is likely biased toward reporting worst-case scenarios, as opposed to the more typical exposures that do not cause symptoms or attract attention.

Case reports from the literature provide more information about risk factors, exposure scenarios, and associated health outcomes. The specifics relate to the individual cases and are not representative of all exposure scenarios.

Despite their limitations, the data sources reviewed in this report are the best available data sources on acute exposures to hazardous substances in the United States. Excluding events that were reported prior to 2002, this report provides an overview of the current information available on elemental mercury exposure events and provides examples of potential exposure scenarios.

12. DISCUSSION

The ATSDR\CDC Mercury Workgroup was formed to address the Congressional directive that ATSDR assess the extent of children's exposure to mercury from former industrial sites and other sources nationwide. The specific objectives included: 1) identify the sources associated with elemental mercury exposure in children and 2) describe the location, demographics, and proportion of children exposed or potentially exposed to elemental mercury in the United States. These objectives are further described in sections 12.1 and 12.2.

12.1. Identifying Exposure Sources Associated with Elemental Mercury

This review of data sources and scientific literature found that children are most frequently exposed to mercury when mercury is mishandled or when people improperly clean up spilled mercury.

Children are potentially exposed to mercury that is scavenged, collected, and pooled from sources such as school science laboratories, electrical or medical equipment, and industrial sites [Azziz-Baumgartner et al. 2007; Baughman 2006; CDC 2005a, b; Gordon 2004; Tominack et al. 2002].

Exposure to small spills from broken thermometers represents the most frequent scenario, based upon reports retrieved from AAPCC. Caravati et al. [2008] reported that mercury thermometer exposures reported to AAPCC declined 48% from 2001 through 2005. The increased use of mercury free thermometers may have led to this decline. In 2000, 11 national retailers jointly issued a press release in which they pledged to stop selling mercury thermometers. In addition, the nation's largest manufacturer of mercury thermometers announced plans to stop producing them [Goldstein 2000]. In 2008, the Interstate Mercury Education and Reduction Clearinghouse, a program of the Northeast Waste Management Officials' Association, reported an 11% reduction in the sale of mercury-containing products from 2001 to 2004 [IMERC 2008].

Although the sales of some mercury-containing products have decreased, sales of the compact fluorescent lightbulb (CFL) are increasing. The CFL is an EPA Energy Star recommended product that is an effective way to reduce energy use. However, each CFL contains a small amount of mercury, which makes disposal in regular refuse problematic. Given the potential cumulative hazard from breaking a large number of CFLs, or the disposal of large numbers of CFLs in landfills, the public must learn

about the need for proper disposal and have easy access to appropriate disposal facilities.

12.2. Describing the Location, Demographics, and Proportion of Children Affected

Mercury exposures are divided into three primary categories based on location. Ordered by relative frequency, these exposure categories include exposures that occur 1) in the home, 2) at school, and 3) at other locations such as inadequately remediated industrial properties or medical facilities. In all of these locations, the primary exposure pathway of concern is through inhalation of elemental mercury. Children may play with and disperse mercury in more than one location such as a home or school. Once dispersed, the droplets may volatilize and contaminate indoor air. Inhaling mercury vapor may go unrecognized, as it is colorless and odorless.

The demographics and proportion of U.S. children affected by these exposures is not directly quantifiable using the various data sources reviewed. Most data sources that collect information on the release of hazardous substances do not systematically collect information on the persons affected. The typical exposure scenario involves relatively small amounts of mercury without reports of human illness. Neither urine nor blood mercury levels correlate well with the presence or severity of symptoms [Cherry et al. 2002; Gattineni et al. 2007; Tominack et al. 2002]. Elevated mercury vapor levels are documented at times, but health effects are rarely reported after small mercury spills (e.g., broken fever thermometer). Regardless, one must clean up even small spills properly and avoid improper actions such as tracking and vacuuming. Caravati et al. [2008] did not identify any clinical toxicity after small spills that were properly cleaned up.

Although the extent of mercury use in the home for religious purposes is not well characterized, such use may lead to chronic mercury exposure among those who use it in this manner and for subsequent occupants of the contaminated homes. Some evidence suggests that attempting to ban mercury could drive its use and sales underground, making the risks of using mercury and the benefits of mercury-free alternatives difficult for local health officials to communicate [Riley et al. 2001]. The individuals affected are most likely to be members of minority populations, raising concerns about environmental injustice in these communities.

13. CONCLUSIONS

Although other efforts have focused on chronic mercury exposures that are beyond the control of most individuals, this report focuses on exposures to elemental mercury that are clearly preventable. Reducing the population's exposure to heavy metals such as mercury, as measured by blood and urine concentrations, supports the Healthy People 2010 recommendations [DHHS 2000].

Although credibly estimating the frequency of elemental mercury exposures among children in the United States is not possible, such exposures are occurring. These incidents typically result from the misuse of mercury-containing equipment or a lack of knowledge regarding the hazard. Exposure events most frequently occur in the home and school and are typically a result of the misuse of mercury or mercury-containing equipment. The typical exposure scenario involves relatively small amounts of mercury (e.g., broken mercury thermometer) without reports of human illness. Elevated mercury vapor levels have been documented after small spills, but demonstrable health effects are rarely identified or reported. However, in some situations medical providers have identified mercury exposures by taking an environmental exposure history while evaluating children for nonspecific symptoms [Chrysochoou et al. 2003; Solis et al. 2000].

As the amount of mercury released increases, so does the risk for harmful exposure. Better coordination of exposure and health information is needed to determine the number of children potentially harmed by larger mercury spills. Regardless, all spills should be cleaned up properly. The EPA website titled, "Spills, Disposal and Site Cleanup" provides useful information on how to appropriately clean up mercury spills (http://www.epa.gov/hg/spills/).

Initiatives that affect the number of children exposed have focused on reducing or removing mercury from consumer products, eliminating mercury from school science laboratories, and educating the public and school officials about its toxicity. These targeted initiatives have great potential. For example, Indiana, Minnesota, Michigan, and Wisconsin have mercury-awareness programs that provide advice and resources to the public regarding mercury toxicity, cleanup after spills, and proper disposal of mercury. Supplemental information on initiatives that may reduce exposure frequency is presented in the Appendix. This section provides information on some current mercury prevention initiatives. This section also describes a number of useful resources for obtaining additional information on mercury hazards and preventing mercury exposures.

In several states (e.g., Michigan), schools are required to eliminate mercury use in the classroom and in the school nurse's office [Legislative Council 2001]. As with removing mercury from thermometers, primary prevention efforts that focus on decreasing the availability of other mercury sources offer the best hope for protecting children (see Supplemental Material). In addition, eliminating mercury sources also eliminates potentially expensive cleanup costs. Although mercury thermometers and other mercury-containing equipment are being phased out, many containers and products containing mercury remain in schools, medical facilities, and homes, which could result in future childhood exposures.

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15. APPENDIX

Table 1: Geometric Means, Selected Percentiles, and the Corresponding 95% Confidence Intervals (CI) for Urine Mercury Concentrations (µg/L) for Children Sampled as Part of the National Health and Nutrition Examination Survey.

Year Survey Conducted	Age Group in Years	Sample Size	Geometric Mean (95% CI)	Selected Percentile (95% CI)			
				50th	75th	90th	95th
2003–2004	6–11	286	0.254 (0.213–0.304)	0.190 (0.160–0.230)	0.430 (0.330–0.560)	1.14 (0.610–1.61)	1.96 (1.13–2.97)
2003–2004	12–19	722	0.358 (0.313–0.408)	0.320 (0.270–0.360)	0.700 (0.530–0.840)	1.59 (1.13–2.52)	2.83 (1.88–3.66)

Table 2: Federal, State, and Regional Programs that Capture Information on Releases of Hazardous Substances.

Information Sources	Database	Internet URL
Federal Agencies		
▪ Agency for Toxic Substances and Disease Registry	▪ Health Consultations ▪ Emergency Response ▪ Hazardous Substances Emergency Events Surveillance	▪ www.atsdr.cdc.gov/HS/HSEES
▪ Centers for Disease Control and Prevention	▪ Clinical Information Service	▪ www.emergency.cdc.gov/coca/800cdcinfo.asp
▪ U.S. Coast Guard	▪ National Response Center Database	▪ www.nrc.uscg.mil/nrcback.html
▪ U.S. Environmental Protection Agency	▪ Superfund Information System ▪ National Priorities List	▪ www.epa.gov/superfund/sites/siteinfo.htm ▪ www.epa.gov/superfund/sites/query/advquery.htm
▪ National Institute for Occupational Safety and Health	▪ Report to Congress on Workers' Home Contamination Study Conducted Under the Workers' Family Protection Act (29 U.S.C. 671a)	▪ http://www.cdc.gov/niosh/contamin.html
Other Recognized Public Health Entities		
▪ American Association of Poison Control Centers	▪ National Poison Data System	▪ www.aapcc.org/dnn/NPDS/tabid/65/Default.aspx
▪ Association of Occupational and Environmental Clinics	▪ Pediatric Environmental Health Specialty Units	▪ www.aoec.org/PEHSU.htm

Table 3: Overview of the Agency for Toxic Substances and Disease Registry (ATSDR) Health Consultations Involving U.S. Children Exposed to Elemental Mercury (Hg): Documented Between 2002–2007* (N=26).

Year Exposure Reported Title of Health Consultation	State	Location	Estimated Hg Released ml	Max Hg in Air µg/m‡	Urine Hg Level µg/L	Blood Hg µg/L	Source of Mercury Exposure	URL
2002								
Hayes Middle School	MI	School	-	2	-	≤ 3	Mishap during science class demonstration	http://www.atsdr.cdc.gov/HAC/pha/hayes/hms_p1.html
Hg Spill Assist in Watervliet	MI	Home	-	5	10	-	Broken thermostat	http://www.atsdr.cdc.gov/HAC/pha/watervliet/msa_p1.html
Sarasota Residential Mercury Spill	FL	Home	237–296	43	4–5	-	Hg found at roadside and taken home	http://www.atsdr.cdc.gov/hac/pha/sarasotamercury/srm_p1.html#sum
Princeton Avenue Mercury Spill	MI	Home	167	4	-	-	Unknown source of Hg in furnace	None available
Spectrum Home Care Hg Spill Event	MI	Home	-	24	ND	-	12 broken thermometers	http://www.michigan.gov/documents/Spectrum_Home_Care_(thermometer)_102582_7.pdf
2003								
Mobile Medical Hg Spill	FL	Medical	-	10	-	ND	Leaking blood pressure calibration device	http://www.atsdr.cdc.gov/HAC/pha/MMIMercurySpill081103/MMIMercurySpill081103HC.pdf
Eastern Clinic Hg Spill	MI	Medical	-	42	-	-	Broken sphygmomanometer	http://www.atsdr.cdc.gov/HAC/pha/EasternClinic110503-MI/EasternClinic_HC110503.pdf
Durand Hg Incident	MI	Home	296–355	-	-	ND	Children stole vials of Hg from junkyard	http://www.atsdr.cdc.gov/HAC/PHA/durandmercury/dmi_toc.html
Rosemore Middle School	OH	School Home	25	58	-	-	Child brought vial of Hg from home to school	http://www.atsdr.cdc.gov/HAC/pha/rosemore/rms_p1.html
Hg Exposures from 3M Tartan Brand Floors	OH	School	-	2	-	-	Hg off gassing from Hg catalyst in gym floor	http://www.atsdr.cdc.gov/HAC/pha/westerville/wes_p1.html
2004								
Locust Grove Hg Response Site	GA	Home	12	36	-	-	Children stole and dismantled 2 sphygmomanometers and took Hg home	http://www.atsdr.cdc.gov/HAC/pha/locustgrove/loc_toc.html
St. Louis Residential Hg Spill	MI	Home	-	0.1	-	-	Broken thermometer	http://www.atsdr.cdc.gov/HAC/pha/StLouisResidentialMercury050604-MI/StLouisResidentialMercuryHC050604.pdf
Benton Harbor Residential Hg Spill	MI	Home	9–16	>92	-	≤ 29	Broken sphygmomanometer	http://www.atsdr.cdc.gov/HAC/pha/BentonHarbor102604HC-MI/BentonHarbor102604HC-MI.pdf

Table 3: Overview of ATSDR Health Consultations (continued)

Year Exposure Reported Title of Health Consultation	State	Location	Estimated Hg Released ml	Max Hg in Air µg/m³‡	Urine Hg Level µg/L	Blood Hg µg/L	Source of Mercury Exposure	URL
2004 (continued)								
Charlotte Middle School Hg Incident	MI	School	-	8	-	-	3 10-inch thermometers broken during science class	http://www.atsdr.cdc.gov/HAC/pha/CharlotteMiddleSchoolMercury072104-MI/CharlotteMidSchool072104-MI.pdf
Mid-Michigan Hg Floor	MI	School	-	0.05	-	-	Hg off-gassing from Hg catalyst in gym floor	http://www.atsdr.cdc.gov/HAC/pha/Mid-MichiganMercuryFloor050604-MI/Mid-MichiganMercuryFloorHC050604.pdf
Rosemont Woods Hg Incident	MN	13 Homes 1 Car	700	-	< 10†	< 4 to 13$	Children stole Hg from industrial site and dispersed it among other children	http://www.atsdr.cdc.gov/HAC/pha/Rosemount%20Woods%20Mercury%20Incident/RosemountWoodsHC071305.pdf
Luxemburg Single Residence Mercury Spill	WI	Home	-	0.6	-	-	Hg spilt from broken thermostat switch	http://www.atsdr.cdc.gov/HAC/pha/Luxemburg022305-WI/Luxemburg022305-WI.pdf
Stoughton High School Mercury Spill	WI	School	59	22	≤ 6	-	Accidental glass manometer spilt Hg	http://www.atsdr.cdc.gov/HAC/pha/stoughtonhs/shs_p1.html#sum
2005								
El Camino Middle School Hg Spill	CA	School	-	>20	-	-	Student brought 35 mm film canister of Hg to school and played with it	http://www.atsdr.cdc.gov/HAC/pha/El%20Camino%20Mercury%20Spill/ElCaminoMercurySpillHC10-04-05.pdf
Hg Contamination in Indoor Air	KY	Home	-	≥ 50	-	-	Multiple Hg vials stored in home may have leaked or been played with	http://www.atsdr.cdc.gov/HAC/pha/StateofKYMercury031505-KY/StateofKYMercury031505-KY.pdf
2006								
Kingsford Middle School	MI	School	-	< 3	-	-	Teacher poured Hg on desk to show students the physical properties of Hg. Hg then recaptured and brought home.	http://michigan.gov/documents/mdch/Kingsford_Middle_School_spill_225681_7.pdf
Petersburg Hg Site	MI	Home	-	11	ND	< 4	Unknown	http://www.michigan.gov/documents/mdch/Petersburg_HC_home_workshop_225964_7.pdf
Ontonagon High School Hg Release	MI	School	33	9	-	-	Accidental spill at school	http://www.atsdr.cdc.gov/HAC/pha/OntonagonHighSchoolMercurzRelease/OntonoganHighSchoolHC033007.pdf
Hg-Containing Polyurethane Floors in Minnesota Schools	MN	School	-	3	-	-	Hg off-gassing from Hg catalyst in gym floor	http://www.atsdr.cdc.gov/HAC/pha/MercuryVaporReleaseAthleticPolymerFloors/MercuryVaporRelease-FloorsHC092806.pdf
Kiddie Kollege	NJ	Daycare	-	13	Max of 18†	-	Building formerly used to manufacture mercury thermometers	http://www.atsdr.cdc.gov/HAC/pha/KiddieKollege/KiddieKollegeHC061307.pdf
Salem-Keizer School District 3M Flooring	OR	School	-	2	-	-	Hg off-gassing from Hg catalyst in gym floor	http://www.atsdr.cdc.gov/HAC/pha/SalemKeizerSchoolDistrict/Salem-KeizerSchoolHC071206.pdf

* Health Consults were queried based on completion date (2002 – 2007). However, the actual exposure may have taken place prior to the year the Health Consult was finalized.
† µg/g creatinine
‡ If more than one vapor Hg level was given, the reported level reflected the maximum level in a breathing zone or living space. ATSDR Minimal Risk Level for chronic mercury inhalation is 0.2 µg/m³.
$ Blood mercury results reported for 2 days after exposure.
ND = No level detected

Table 4: Characteristics of Hazardous Substances Emergency Events Surveillance (HSEES)-Reported Mercury Events: 2002–2006.[*]

	N	%		N	%
Mercury Events	843	100	**Type of Release**		
Events Affecting Children	409	49	Spill Only	360	88
			Volatilization	6	2
State Reporting Event			Spill and Volatilization	40	10
Reporting all 5 years			Fire	1	<1
Colorado	5	1	Not reported	2	<1
Iowa	8	2			
Louisiana	0	0	**Location of Event**		
Minnesota	56	14	Private household	307	75
New Jersey	73	18	School[†]	98	24
New York	129	32	Other	4	1
North Carolina	5	1			
Oregon	4	1	**Contributing Cause of Event**		
Texas	6	2	Equipment failure	27	7
Utah	19	5	Human error	357	87
Washington	7	2	Intentional or illegal release	18	4
Wisconsin	32	8	Unknown	7	2
Reporting 4 years					
Missouri	39	10			
Reporting 2 years					
Alabama	0	0			
Florida	7	2			
Michigan	16	4			
Mississippi	3	1			

[*] Percentages may total beyond 100% due to rounding error.
[†] Includes private property other than a home (3) and restaurant (1).

Table 5: Mercury Events Reported to the National Response Center by Year[*]: 2002–2007.

Year Reported	Number of Hg Events	Number of Events in Which Children were Potentially Exposed
2002	164	14
2003	98	13
2004	111	22
2005	158	20
2006	142	24
2007	152	20
Total (2002–2007)	825	113

[*] The actual exposure may have taken place prior to the year the spill event was reported.

Table 6: Mercury Events Reported to the National Response Center that Potentially Exposed Children by Location: 2002–2007 (N= 113).

Category	Number[*]
School	50
Home	5
Medical facility or clinic	1
Other location[†]	14
Location not reported	45

[*] Exposure locations are not mutually exclusive; therefore, the number of locations does not total the number of reported events (N=113). In addition, location is likely biased by the selection criteria of including all exposure events at schools or daycare facilities.

[†] Category includes street addresses when the specific location (i.e., school or home) could not be determined.

Table 7: Number and Percentage of Non-Thermometer-Related Calls to the American Association of Poison Control Centers by Mercury Subclassifications: 2002–2006.*

Year	Mercury Type	Total Calls Received # (%)	Calls Regarding Children ≤ 19 Years of Age # (%)	Calls Regarding Children as Percentage of Total Calls Received
2002				
	Mercury	3,754 (100)	1,540 (100)	41
	Elemental†	3,577 (95)	1,495 (97)	42
	Inorganic	34 (1)	11 (1)	32
	Other‡	143 (4)	34 (2)	24
2003				
	Mercury	3,292 (100)	1,584 (100)	48
	Elemental†	3,003 (91)	1,494 (94)	50
	Inorganic	38 (1)	8 (1)	21
	Other‡	251 (8)	82 (5)	33
2004				
	Mercury	3,023 (100)	1,440 (100)	48
	Elemental†	2,739 (91)	1,350 (94)	49
	Inorganic	53 (2)	16 (1)	30
	Other‡	231 (8)	74 (5)	32
2005				
	Mercury	3,051 (100)	1,213 (100)	40
	Elemental†	2,639 (86)	1,109 (91)	42
	Inorganic	54 (2)	8 (1)	15
	Other‡	358 (12)	96 (8)	27
2006				
	Mercury	2,619 (100)	999 (100)	38
	Elemental†	2,420 (92)	948 (95)	39
	Inorganic	26 (1)	7 (1)	27
	Other‡	173 (7)	44 (4)	25
Total for all 5 years (2002–2006)	Mercury	15,739 (100)	6,776 (100)	43
	Elemental†	14,378 (91)	6,396 (94)	44
	Inorganic	205 (1)	50 (1)	24
	Other‡	1,156 (7)	330 (5)	29

* Percent totals may not equal zero due to rounding errors.
† Does not include amalgams or thermometers
‡ Includes amalgams, organic mercury, "unknown," etc.

Table 8: Number and Percentage of Calls to the American Association of Poison Control Centers Regarding Human Exposure to Mercury Thermometers: 2002–2006.

Year	Thermometer Type	Total Calls Received	Calls Regarding Children ≤ 19 Years of Age	Calls Regarding Children as Percentage of Total Calls Received
2002	General formulation	12,466	8,450	68
	Basal	650	471	72
	Hi low	668	449	67
	Oral fever	625	381	61
	Baby rectal	492	346	70
	Yellow back glass	10	7	70
	Mercury metal	6	4	67
2003	General formulation	10,136	7,137	70
	Basal	467	327	70
	Hi low	371	241	65
	Oral fever	509	350	69
	Baby rectal	307	213	69
	Yellow back glass	7	5	71
	Mercury metal	2	1	50
2004	General formulation	6,432	4,486	70
	Basal	325	210	65
	Hi low	302	189	63
	Oral fever	374	259	69
	Baby rectal	176	132	75
	Yellow back glass	3	3	100
	Mercury metal	3	1	33
2005	General formulation	5,472	3,650	67
	Basal	314	194	62
	Hi low	183	126	69
	Oral fever	364	259	71
	Baby rectal	157	103	66
	Yellow back glass	2	0	0
	Mercury metal	2	1	50
2006	General formulation	3,538	2,349	66
	Basal	243	153	63
	Hi low	171	96	56
	Oral fever	318	218	69
	Baby rectal	127	78	61
	Yellow back glass	9	2	22
	Mercury metal	1	0	0
Total for all 5 years (2002–2006)	General formulation	38,044	26,072	69
	Basal	1,999	1,355	68
	Hi low	1,695	1,101	65
	Oral fever	2,190	1,467	67
	Baby rectal	1,259	872	69
	Yellow back glass	31	17	55
	Mercury metal	14	7	50

Table 9: Peer-Reviewed Literature Reporting Elemental Mercury (Hg) Exposures Involving U.S. Children: Published Between 2002–2007.

Year of Exposure	Exposure Location	Amt. of Hg Spilled ml	# of Children Exposed	Age	Exposure Duration	Source of Mercury Exposure	Vapor Mercury Levels[6] µg/m^3	Hg in Blood µg/L	Hg in Urine µg/L	Reported Symptoms[1]	References
NR*	Home Car School	180–480	19	2–18	1 month	Youth stole Hg from school. Gave Hg to other youth who dispersed Hg at home and school.	1,764 in 1 home 143 in 1 car <3 at school	-	≤ 428	Back, leg, joint, stomach, muscle pain, painful urination, constipation, night sweats, peeling feet and fingers, red hands, rash, poor sleep, edema, desquamation of palms, groin pain, constipation, impotence, Guillain-Barre syndrome, headaches, high blood pressure, insomnia, acrodynia	Tominack 2002
NR	Home	unknown	1	8	4 months	Hg was found dripping from the kitchen stove vent	6.5	-	12	Pain and decreased motor strength in both lower extremities, burning sensation in hands and feet, headache, dizziness, nausea, constipation, suppressed appetite, waddling gait, and irritability	Gattineni 2007
1993	Home	33	4	10–17	1 month	Youth stole Hg from school. Youth and siblings played with Hg at home and applied to skin.	110–140 4 months after initial exposure	-	586–1,348	Unable to walk and stand, seizures, rash, nausea, vomiting, fever, cough, thrombocytopenia platelets, melanotic stool with bright red blood, fever, and respiratory arrest	Baughman 2006
1994	Home	33	Several children	NR	2 hours	Children played with and broke Hg-containing medical device.	Up to 30	-	-	NR	

Table 9: Peer-Reviewed Literature (continued)

Year[5] of Exposure	Exposure Location	Amt. of Hg Spilled ml	# of Children Exposed	Age	Exposure Duration	Source of Mercury Exposure	Vapor Mercury Levels[6] µg/m^3	Hg in Blood µg/L	Hg in Urine µg/L	Reported Symptoms[1]	References
1998	School Home	30	182	Adolescent	Minutes to 3 days	Youth stole Hg from school science room. Sold to other students. Some took Hg home.	< 5–702 at school			Headache, itching, sore throat, coughing, abdominal pain, nausea, dizzy, runny nose, diarrhea, shortness of breath, vomiting, fever, metallic taste, chest pain	
1998	School Home	30	74	11–18 yrs	≤ 16 days	Youth stole Hg from school science room. Gave Hg to other students. Some took Hg home.	< 5 at school	20–32	≤ 0.20	NR	Gordon 2005
1998	School Home	unknown	18	NR	NR	NR	11–30			NR	
2000 and earlier	1,363 Homes	≤ 10 per house	NR	NR	NR	Hg spilled during removal of gas regulator	27 – 78 in one home	16 for one child	10–26[3]	Headaches, rash	Hryhorczuk 2006
2000	Home	NR	5	3–16	≤ 9 months	Prior tenants of mobile home left container of Hg in closet. Container believed to be spilled on carpet.	NR	295	600–2,940 µg/24-hour sample	Weight loss, limping, ataxia, irritability, speech regression, tachycardia, hypertensive	Cherry 2002

Table 9: Peer-Reviewed Literature (continued)

Year of Exposure	Exposure Location	Amt. of Hg Spilled ml	# of Children Exposed	Age	Exposure Duration	Source of Mercury Exposure	Vapor Mercury Levels[6] µg/m^3	Hg in Blood µg/L	Hg in Urine µg/L	Reported Symptoms[1]	References
2003	School Home	NR	1,000	Adolescent	NR	16-year-old student took Hg from chemistry lab. Hg spread around school and several homes	NR	NR	NR	NR	Johnson 2004 CNN 2003
2004	School School Bus	60	55	Adolescent	<12 hours	Youth stole Hg from school. Gave Hg to other youth who dispersed Hg at home and school. Hg played with on school bus and school.	>50	NR	Mean 0.36	Respiratory	Azziz-Baumgartner 2004
2004	Outdoors Home	701	14	6–16 yrs	<2 hrs	Youth stole Hg from industrial site. Gave Hg to other youth and played with it.	0.06 to 50	< 4 to 13	3–<10[2]	Cough, loss of appetite	CDC 2005b
2004	School Bus School Home	unknown	15 at school 6 at home	Adolescent	<1 day at school 15 months at home	Youth stole Hg from dental office and brought to school. Gave Hg to other youth and played with it.	5.3 to 36.6 school >50 home	32–72[3]	28–496	Rashes, headaches, tachycardia, hypertension, desquamation of soles and palms, diaphoresis, muscle pain, insomnia, vomiting, and behavioral and psychiatric changes	CDC 2005c

[*] NR = Not Reported
[1] Not all children exposed had symptoms
[2] µg/g creatinine
[3] Includes adults
[4] µg/ml
[5] Year of exposure rather than publication year is presented; in some cases the exposure occurred several years prior to the publication.
[6] ATSDR Minimal Risk Level for chronic mercury inhalation is 0.2 µg/m^3.

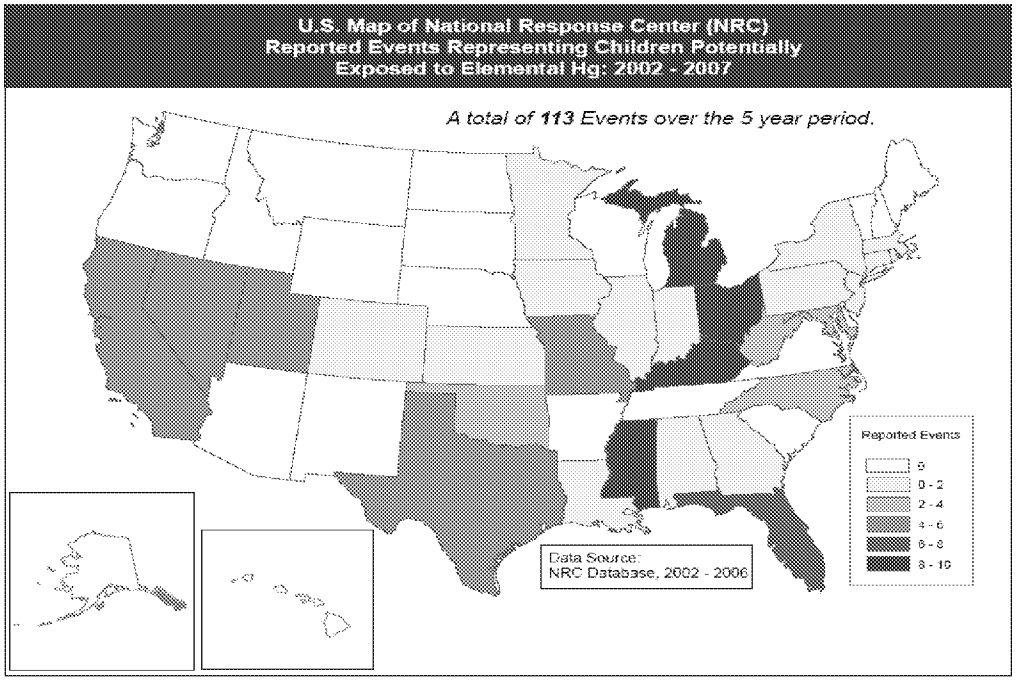
Figure 1a: Mercury Contamination in Floorboards of a Residential Home.

Photograph and additional information available from http://www.epaosc.net/site_profile.asp?site_id=3372
Accessed 27 February 2008

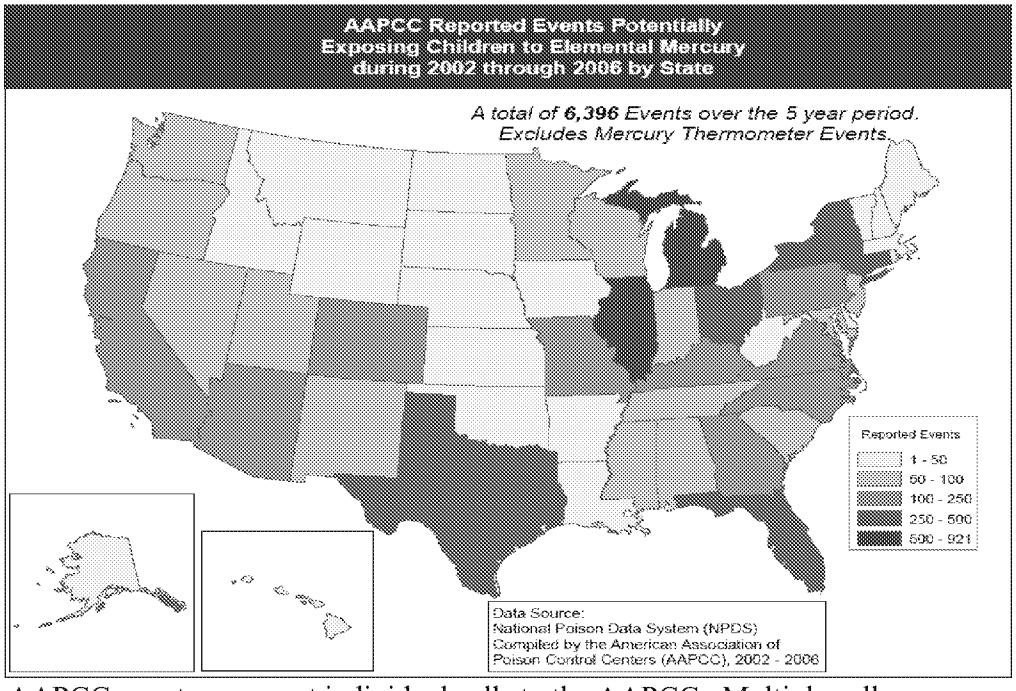
Figure 1b: Mercury Contamination Near a Residential Furnace.

Photograph obtained from the Michigan Department of Community Health

Figure 2: Maps of the United States Representing Mercury (Hg) Events Potentially Exposing Children to Elemental Hg as Reported by the National Response Center (NRC) and Elemental Hg Calls to the American Association of Poison Control Centers (AAPCC) by State.



NRC events represent potential childhood exposures. States with more calls may reflect increased awareness of Hg hazards and subsequently increased reporting.



AAPCC events represent individual calls to the AAPCC. Multiple calls may refer to one or more Hg exposure events. States with more calls may reflect increased awareness of Hg hazards and subsequently increased reporting.

Figure 3: Frequency of Mercury-Related Inquiries Reported to U.S. Pediatric Environmental Health Specialty Units (PEHSU) (N=11) in Which the Age of the Child in Question was Known (N=225).

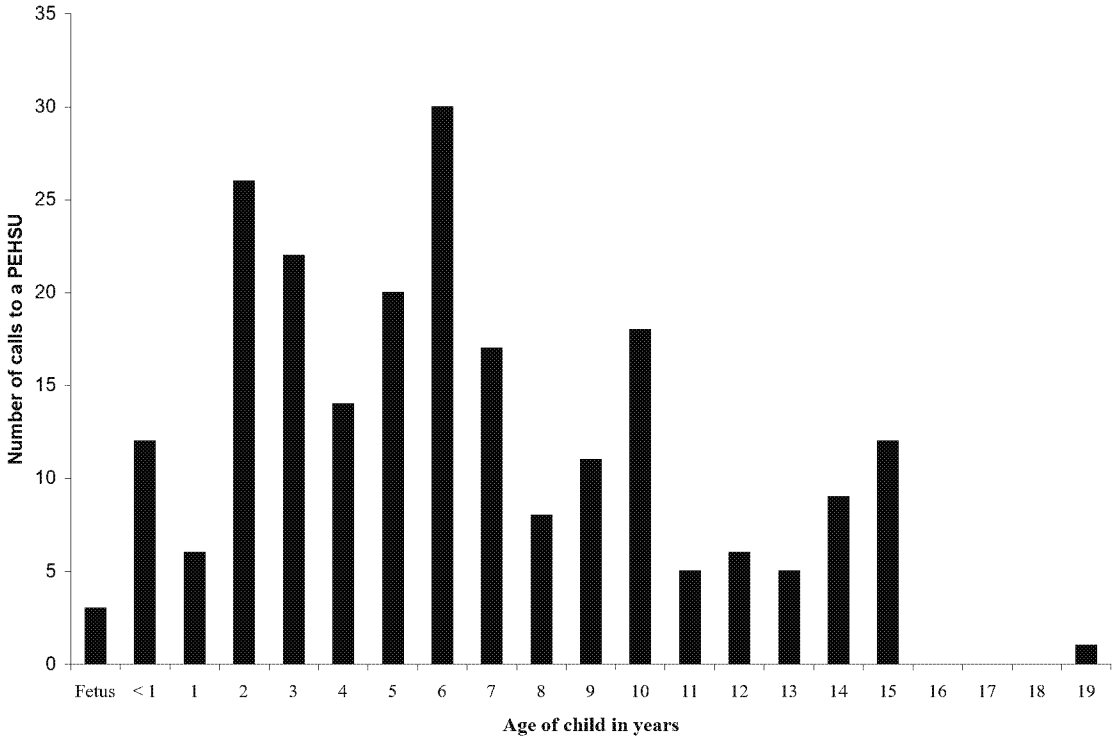
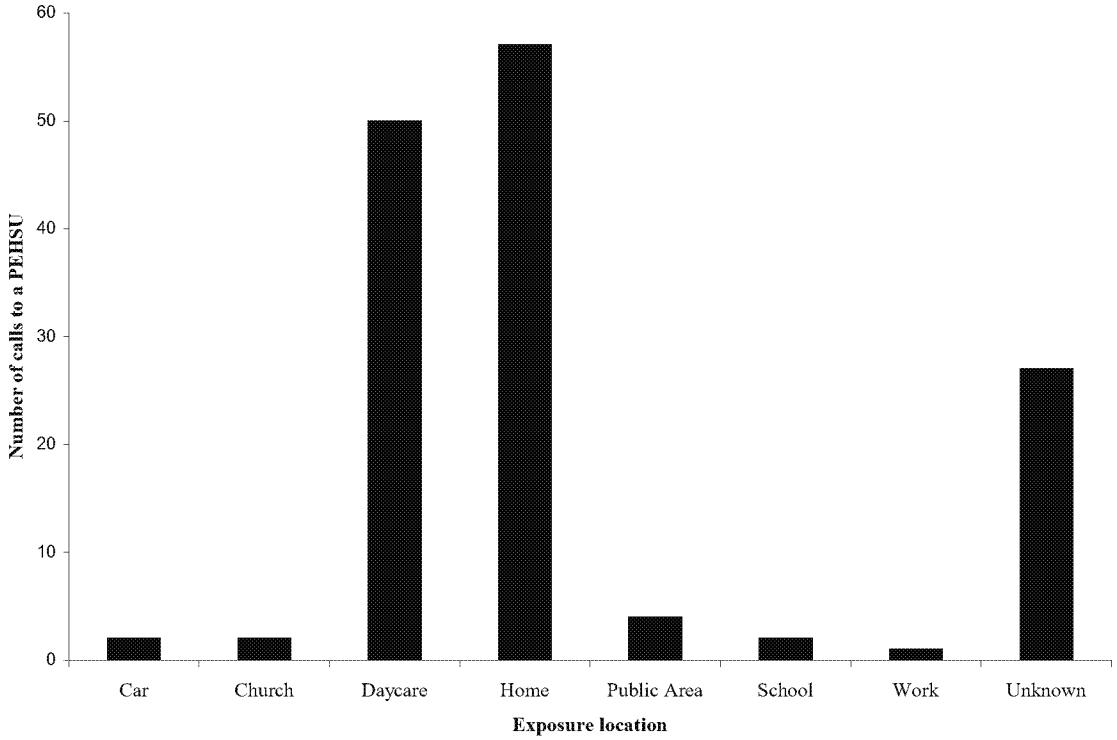


Figure 4: Frequency of Mercury-Related Inquires Reported to U.S. Pediatric Environmental Health Specialty Units (PEHSU) (N=11) by Exposure Location (N=145).



Supplemental Material

Initiatives That May Reduce Exposure Frequency

To further assess the extent of children's exposure to mercury from former industrial sites and other sources nationwide, the workgroup reviewed and described a number of ongoing initiatives and available resources that impact the occurrence and frequency of these events. This list is not intended to be an exhaustive list.

Ongoing Efforts to Reduce Exposure to Elemental Mercury

A number of federal and state-based initiatives affect the potential for childhood mercury exposures.

Federal Initiatives. Congress passed the Small Business Liability Relief and Brownfields Revitalization Act in 2002, setting up the funding of grants for brownfields activities administered by EPA. Brownfields are defined in the statute as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." The EPA Brownfields program awards grants to state, tribal and local governments and not for profit organizations to assess and clean up eligible brownfields, including sites that may have been contaminated with mercury through industrial activity or illegal disposal (http://www.epa.gov/brownfields). States may oversee assessment and cleanup activities, where appropriate, to ensure the cleanup meets state standards."

Through its role in the brownfields initiative, ATSDR created a Brownfields/Land Reuse Steering Committee, composed of ATSDR, EPA, and state partners, to assess the impacts of redevelopment on public health. This effort includes the broader health impacts of revitalization and a sustainable environment.

In another federal initiative, ATSDR and state partners have created a workgroup to address concerns regarding mercury vapor release from floor covering. The intent of this group is to provide more detailed information on the environmental and human health concerns for staff and students who attend schools with polyurethane floors that contain a mercury catalyst. Local school authorities will use the information gathered to make informed risk management decisions and to provide parents and students with appropriate information on potential health risks.

Mercury is found in many schools, often in such equipment as thermometers and barometers. Accidental exposures to mercury due to equipment breakage or spills can have negative effects on children's health. Since mercury spills in schools are usually caused by improper storage or mishandling of mercury containing equipment, EPA actively encourages schools to prevent mercury spills by removing all mercury mercury-containing equipment. EPA's "Schools Chemical Cleanout Campaign" provides schools with information and tools to help them identify and remove mercury equipment and

supplies. Extensive additional information for schools is available on EPA's website, http://epa.gov/mercury/schools.htm.

State Initiatives. A few states have passed laws that affect locating schools and redeveloping property for use as a school. Ten states have laws that prohibit locating a school on or near pollution sources, including mercury-contaminated sites. Six states require environmental assessments for any new school locations. However, the vast majority of states have yet to adopt such regulations.

To reduce the amount of mercury entering the waste stream and lessen the incidence of spills and exposures, some states have restricted the sale and disposal of mercury-containing products. For example, legislation was enacted (or proposed) regarding the sale or disposal of mercury-containing thermometers, thermostats, switches, relays, blood pressure devices, electronic appliances, batteries, and dental amalgams. Some legislation specifically targets the use of products containing mercury in schools or health care settings. EPA provides a table of mercury legislation, regulations, resolutions, and county/city ordinances by state on its Web site (http://www.epa.gov/epawaste/hazard/tsd/mercury/laws.htm). Currently, there are 45 states with mercury initiatives.

As an example of a specific state-based initiative, the Michigan Department of Environmental Quality has released a comprehensive strategy to eliminate the use and release of mercury. The details of this strategy are available at http://www.michigan.gov/documents/deq/MDEQ_MSWG_FinalReportJan2008.pdf_222256_7.pdf. This comprehensive plan addresses mercury releases to air, land, waste, and water and outlines Michigan's rules, regulations, policies, and monitoring activities. The Michigan Department of Community Health (MDCH) has also launched a mercury Web site (www.michigan.gov/mercury) to provide information to homeowners, schools, businesses, and responders. MDCH also joined with AAPCC, EPA, and local health departments to provide information to local communities on how to handle spills.

In addition to enacting legislation that prohibits the use of mercury and limits the availability of products containing mercury in schools, some states have developed initiatives to proactively educate teachers and students regarding the potential dangers of mercury exposures and to assist in school laboratory cleanouts. For example, the Illinois Department of Public Health (IDPH) has an interactive mercury education Web site (http://app.idph.state.il.us/envhealth/mercury/Default.htm) that includes curricula for teachers, information on handling spills in the classroom, and activities for children to learn how to avoid exposure. In addition, as part of a program to reduce the risks of chemical hazards in schools, including mercury, IDPH hosts 10 to 12 training workshops for teachers each year and has specifically targeted mercury hazards [Davis and Runkle 2004]. Not all state initiatives are this comprehensive.

Selected Resources with Information on Preventing Mercury Exposure

The following resources may help organizations or individuals who seek information on preventing mercury exposures, responding appropriately to environmental contamination, and evaluating and caring for exposed children. These resources are not intended to represent the universe of available and useful resources. Although these resources are generally useful, information from sources other than CDC/ATSDR was not formally reviewed and do not represent any CDC/ATSDR determination or policy.

General Information. The United Nations Environment Programme has established a Web site (http://www.chem.unep.ch/mercury/) to increase awareness of the health and environmental issues related to mercury. The Web site includes questions and answers, links to international mercury Web sites, and the reports of an international workgroup on mercury. Although it is not limited to elemental mercury, the site includes several useful resources and guidance on reducing mercury exposure.

Individuals who are interested in what products contain mercury may find the Interstate Mercury Education & Reduction Clearinghouse's (IMERC) Mercury-added Products database useful (www.newmoa.org/prevention/mercury/imerc/notification). This websites gives information on a wide variety of products that contain mercury.

An organization called Healthcare Without Harm maintains a Web site (http://www.noharm.org/us/mercury/alternatives) with recommendations on alternatives to mercury-containing products (e.g., digital thermometers) and on starting community grassroots efforts to reduce or eliminate mercury in communities.

The University of Wisconsin maintains a Web site (http://www.mercuryinschools.uwex.edu/) designed to reduce the impact of mercury spills in schools. It serves as a clearinghouse for information about mercury and related health concerns. This site includes lesson plans for teachers and links to resources to address mercury issues in the community.

The Maine Department of Environmental Protection released a report in 2008 titled, "Maine Compact Fluorescent Lamp Study." The report evaluated different cleanup methods for effectiveness. The report is available at: http://www.maine.gov/dep/rwm/homeowner/cflreport/cflreportwoapp.pdf

The CDC Clinical Information Service is a toll-free hotline (800.CDC.INFO or 800.232.4636) that is serviced 24 hours a day, 365 days a year. The service can rapidly disseminate CDC health-related materials and information (e.g., posters, pamphlets, CD-ROMs) to clinicians and the public.

In addition, the CDC and ATSDR Web sites contain numerous links online mercury information. The ATSDR Mercury Toxicological Profile (http://www.atsdr.cdc.gov/toxprofiles/tp46.html#bookmark01) is a peer-reviewed document that identifies and reviews the key literature regarding mercury's toxicological properties and adverse health effects. The indented audiences include health

professionals at federal, state, and local levels; academicians; nonprofit/environmental groups, and interested members of the public.

ToxFAQs™ for Mercury (http://www.atsdr.cdc.gov/tfacts46.html) is a quick and easy fact sheet on mercury. Answers are provided to the most frequently asked questions about exposure to mercury. The intended audience is the lay community.

The ToxFAQs™ CABS for Mercury (http://www.atsdr.cdc.gov/cabs/mercury/index.htm) provides current and relevant scientific information on mercury for public officials, business leaders, concerned citizens, and others to use in their work.

The ATSDR Pediatric Environmental Health Case Study in Environmental Medicine (CSEM) Appendix B (http://www.atsdr.cdc.gov/csem/pediatric/appendixb.html) is a case study designed to increase the primary care provider's knowledge of mercury in the environment and to aid in the evaluation of potentially exposed pediatric patients.

Another link is to the joint ATSDR and EPA National Alert on metallic or elemental mercury exposures. The alert, titled "National Alert on Mercury: A Warning about Continuing Patterns of Metallic Mercury Exposure," is available at (http://www.atsdr.cdc.gov/alerts/970626.html). The alert includes general information on mercury, cleanup procedures, and how to prevent exposures. The intended audiences are parents and educators.

EPA also provides a web portal to numerous EPA materials on mercury (http://www.epa.gov/mercury). The web site includes a link to information on how to clean up mercury spills (http://www.epa.gov/mercury/spills/index.htm). The guidance on the web site provides information on safely handling small mercury spills in homes (e.g., broken thermometers). The site also provides information regarding the proper disposal of mercury-containing products.

School-Based Information. EPA maintains a Web site titled "Schools and Mercury" (http://www.epa.gov/mercury/schools.htm). The purpose of this Web site is to provide information to enable school administrators and staff to effectively reduce the risk of mercury exposure in schools.

The National Institute of Environmental Health Sciences provides the following Web site for students: http://www.niehs.nih.gov/health/topics/agents/lead/docs/ComparingTwoEnvironmentalEvils.pdf. The Web site provides a lesson plan to teach students about mercury poisoning and compares and contrasts the health effects of mercury and lead. The information on these pages provides useful resources to parents, guardians, and caretakers of children.

In 2006, NIOSH published a guidance document on school chemistry laboratory safety [NIOSH 2006]. This document advocates the appropriate management of mercury in the classroom, which may help reduce or mitigate the many school-based mercury spills reported in the various databases.

Message

From: Social Studio [do_not_reply@radian6.com]
Sent: 1/26/2023 8:19:26 PM
To: Flom, Hannah [Flom.Hannah@epa.gov]
Subject: A post needs your approval

A post needs your approval

EPA Burn Wise
https://www.twitter.com/epaburnwise

February is American Heart Month. #DYK that tiny particles in wood smoke can affect your health, including your heart and lungs? Protect your health - use a cleaner heating device, like a heat pump, gas stove, or EPA-certified wood pellet stove. https://www.epa.gov/burnwise/wood-smoke-and-your-health #health

Review this Post

Laura Beck needs your approval on a post in the workspace OAR

Thank you,
Salesforce Marketing Cloud

Have a question? Check out our Marketing Cloud Help & Training resources!
https://help.salesforce.com

Message

From: Social Studio [do_not_reply@radian6.com]
Sent: 1/26/2023 8:19:45 PM
To: Flom, Hannah [Flom.Hannah@epa.gov]
Subject: A post needs your approval

A post needs your approval

EPA Burn Wise
https://www.facebook.com/EPABurnWise

February is American Heart Month. Did you know that tiny particles in wood smoke can affect your health, including your heart and lungs? Protect your health - use a cleaner heating device, like a heat pump, gas stove, or EPA-certified wood pellet stove. https://www.epa.gov/burnwise/wood-smoke-and-your-health #health

Review this Post

Laura Beck needs your approval on a post in the workspace OAR

Thank you,
Salesforce Marketing Cloud

Have a question? Check out our Marketing Cloud Help & Training resources!
https://help.salesforce.com

Message

From: Schutt, David [David.Schutt@mail.house.gov]
Sent: 1/11/2023 9:40:38 PM
To: Schutt, David [David.Schutt@mail.house.gov]
Subject: SEEC Daily Clips 1.11.23

Sustainable Energy & Environment Coalition

January 11, 2023

Top News

EPA to award $100M to boost environmental justice programs (Associated Press)
The Environmental Protection Agency said Tuesday it is awarding $100 million in competitive grants for projects that advance environmental justice in communities disproportionately affected by industrial pollution and other hazards. The funding, established through the 2022 climate and health law signed by President Joe Biden, marks the largest environmental justice grants the agency has ever offered. The projects are among the first from an expected $3 billion in block grants targeting underserved communities authorized under the new law.

US hit by 18 separate billion-dollar weather and climate disasters last year: NOAA (The Hill)
The United States was hit by 18 weather and climate disasters costing at least $1 billion during 2022, among the most that has occurred in one year. A Tuesday release from the National Oceanic and Atmospheric Administration (NOAA) states that last year tied with 2011 and 2017 for the third highest number of billion-dollar disasters in a calendar year, behind 2020 with 22 billion-dollar events and 2021 with 20. The events in 2022 killed at least 474 people and cost about $165 billion in total, according to NOAA. Last year was the third most costly year for weather and climate disasters on record, trailing 2017 and 2005.

Oceans surged to another record-high temperature in 2022 (Washington Post)
The amount of excess heat buried in the planet's oceans, a strong marker of climate change, reached a record high in 2022, reflecting more stored heat energy than in any year since reliable measurements were available in the late 1950s, a group of scientists reported Wednesday. That eclipses the ocean heat record set in 2021 — which eclipsed the record set in 2020, which eclipsed the one set in 2019. And it helps to explain a seemingly ever-escalating pattern of extreme weather events of late, many of which are drawing extra fuel from the energy they pull from the oceans.

Climate News

Federal Reserve's Powell says central bank will not be a "climate policymaker" (Axios)
Federal Reserve chair Jerome Powell said in a speech on Tuesday the central bank is not a "climate policymaker," though acknowledged the Fed has a duty to ensure banks understand the financial risks associated with climate change. How and if the Fed incorporates climate change initiatives into policymaking will continue to be a political flashpoint in the coming year. Powell seems to be drawing a clear line of how the Fed will maneuver the issue. But, Powell said, the public "reasonably expects" financial regulators like the Fed to require that banks know and "appropriately manage" the financial risks of climate change.

Meet the Climate Quitters (Bloomberg)
Tackling climate change will transform the labor market. With the right policies in place, more than 24 million green jobs could be created globally by 2030, according to the International Labor Organization. But finding people to fill those roles quickly won't be easy. One 2022 LinkedIn survey found that listings for green jobs have grown at an annual pace of 8% since 2015, while green talent grew only 6% each year over the same period. One bright spot: Many job seekers are now looking to work in companies aligned with climate goals. A 2021 Yale School of Management survey of 2,000

students across 29 business schools globally found that 51% would accept lower salaries to work for an environmentally responsible company.

Newsom proposes cuts to climate change programs amid cloudy economic outlook (Los Angeles Times)
Facing a projected $22.5-billion budget deficit in the upcoming fiscal year, Gov. Gavin Newsom on Tuesday announced plans to reduce investments in the state's move to zero-emission vehicles and delay funding for 20,000 new child-care slots as California transitions from a time of economic surplus to shortage. The governor's administration blamed high inflation, the Federal Reserve raising interest rates and volatility in the stock market as the major forces causing state revenues to drop well below projections from last summer when he anticipated a $100-billion surplus in the current budget year.

Energy News

We need a lot more electricians if we're going to electrify everything (Canary Media)
The race to "electrify everything" is picking up. The problem is, most houses aren't wired to handle the load from electric heating, cooking and clothes dryers, along with solar panels and vehicle chargers. Rewiring America, a nonprofit that conducts research and advocacy on electrification, estimates that some 60 to 70 percent of single-family homes will need to upgrade to bigger or more modern electrical panels to accommodate a fully electrified house. But in the Bay Area, arguably the birthplace of the movement to "electrify everything," homeowners are struggling to find technicians to upgrade their electrical panels or install electric heat pumps, let alone for everyday repairs. Residential electrical contractors are swamped with calls and struggling to find experienced people to hire.

2022: 'The year the solar age truly began' (Grist)
2022 was a banner year for the European solar industry. According to an annual market analysis from the trade group SolarPower Europe, the European Union added 41.4 gigawatts of new solar capacity to the grid over the course of the year — a 47 percent increase over solar deployment in 2021 and enough to power 12.4 million European homes. "Only history will tell," the report says, "but it is likely that Europe will remember 2022 as the year the solar age truly began."

Meet the renewable energy source poised for growth with the help of the oil industry (Politico)
Geothermal energy — the technology that harnesses the heat beneath the Earth's crust — is drawing fresh interest after lawmakers boosted funding flows for it in the bipartisan infrastructure law and Inflation Reduction Act, dovetailing with advances in technology, new state incentives and interest from the oil drilling sector. While the next generation of geothermal projects are still in the early stages of development, advocates say the underground energy source has the potential to supply more than 60 gigawatts of firm, flexible power by 2050 — a more than 15-fold jump from the 3.7 GW of capacity it now has in the United States.

Environment & Health News

U.S. agency examines secret pollution source in 40 million homes: Gas stoves (Washington Post)
For years, scientists and health advocates have tried to bring attention to a secret source of air pollution sitting in 40 million homes around the United States — which jump-starts childhood asthma, increases the risk of respiratory problems and emits planet-warming gasses. It's the gas stove. And now, those efforts seem to be gaining traction. On Monday, Richard Trumka Jr., one of the four commissioners of the Consumer Product Safety Commission (CPSC), said in an interview that the U.S. agency was considering a ban on gas stoves — or, at least, standards around the amount of toxic fumes such stoves can spew into Americans' kitchens. On Wednesday, the commission's chair said it would not ban gas stoves, but was researching health risks of gas stoves and possible increases to safety standards.

Louisiana Regulators Are Not Keeping Up With LNG Boom, Environmentalists Say (Inside Climate News)
Amid booming gas exports in Louisiana, environmental regulators aren't keeping up with their job of protecting the public from pollution caused by the growing industry, environmental advocates said on Tuesday. With more Gulf Coast export terminals planned, the threats to area residents and their environment will only increase, according to a report from the Louisiana Bucket Brigade, an environmental group fighting the expansion of liquefied natural gas exports.

Biden admin revisits sage grouse regs, teeing up fresh battles (E&E News)

The Bureau of Land Management is hoping the third time's the charm on a federal blueprint designed to save the greater sage grouse and its dwindling sagebrush habitat. The bird famous for its elaborate spring mating ritual is struggling across much of its range, despite decades of different efforts by federal and state regulators to help the species increasingly threatened by drought and wildfires. BLM is working to complete a revised management plan for the nearly 70 million acres of habitat the agency oversees across the West, first adopted in 2015 under the Obama administration and amended in 2019 by the Interior Department under former President Donald Trump.

Message

From: Schutt, David [David.Schutt@mail.house.gov]
Sent: 1/12/2023 8:10:50 PM
To: Schutt, David [David.Schutt@mail.house.gov]
Subject: SEEC Daily Clips 1.12.23

Sustainable Energy & Environment Coalition

January 12, 2023

Top News

Biden's climate agenda has a problem: Not enough workers (Reuters)
U.S. clean energy companies are offering better wages and benefits, flying in trainers from overseas, and contemplating ideas like buying roofing and electric repair shops just to hire their workers as firms try to overcome a labor shortage that threatens to derail President Joe Biden's climate change agenda. With the U.S. unemployment rate at an historic low of 3.5%, companies say they fear they will struggle to fill those jobs, and that plans to transition away from fossil fuels could stall out. Despite layoff announcements and signs of a slowdown elsewhere in the economy, the labor market for clean energy jobs remains tight.

Right's new fight: Gas stoves (Axios)
Despite official insistence that fears of a ban are unfounded, conservatives are suddenly championing gas stoves in a new culture war. Mounting scientific evidence points to a link between a higher risk of respiratory problems and gas stoves — the prevalent means of cooking in roughly 47 million American households. In a statement, CPSC chair Alexander Hoehn-Saric said research indicates that "emissions from gas stoves can be hazardous, and the CPSC is looking for ways to reduce related indoor air quality hazards." "But to be clear, I am not looking to ban gas stoves and the CPSC has no proceeding to do so." Still, there is growing momentum to electrify buildings. So far, cities and states have taken the lead in trying to regulate gas stove usage.

How climate change will make atmospheric rivers even worse (Washington Post)
In recent weeks, a slew of storms has slammed California, bringing torrential rains and deadly flooding. Storms are typical in the winter, including those associated with atmospheric rivers, or long and wide plumes of water vapor flowing from the tropics. But as Earth warms, climate scientists warn these atmospheric river events may be amplified, bringing even more destruction. The impact of these storms is a paradox. Atmospheric rivers generally provide precipitation critical to a region's water cycle. But too much rain in a short amount of time can have devastating effects on communities.

Climate News

Boycotting comes with a cost [for Republican states] (Politico)
Red-state officials looking to punish financial firms that embrace sustainable investing practices could risk millions more in borrowing costs, a new study finds. Research by the Sunrise Project, a climate-focused nonprofit, estimates that if six Southern states follow Texas' model of boycotting firms, their costs in the municipal bond market could increase between $264 million and $708 million collectively. The study builds off an analysis of the financial impact of two 2021 Texas laws targeting firms' alleged boycotts of the fossil fuel and firearms industries. That study, by University of Pennsylvania and Federal Reserve economists, found Texas cities would pay between $300 million and $500 million more in interest on $32 billion in bonds, based on the exit of several large bond underwriters from the state after the laws' passage.

Supersonic Aviation Program Could Cause 'Climate Debacle,' Environmentalists Warn (Inside Climate News)

An experimental jet that aerospace company Lockheed Martin is building for NASA as part of a half-billion dollar supersonic aviation program is a "climate debacle," according to an environmental group that is calling for the space agency to conduct an independent analysis of the jet's climate impact. The Public Employees for Environmental Responsibility (PEER), an environmental advocacy organization based in Silver Spring, Maryland, said supersonic aviation could make the aviation industry's goal of carbon neutrality unobtainable. In a letter sent to NASA Administrator Bill Nelson on Thursday, the group called on NASA to conduct a "rigorous, independent, and publicly accessible climate impact analysis" of the test jet.

Australia's big polluters must cut emissions by nearly 5% a year, but can use offsets to get there (The Guardian)
Australia's big polluting sites will have to reduce greenhouse gas emissions by nearly 5% a year but will face no limits on the use of carbon offsets under the Albanese government's plan to deal with industrial emitters. Starting from 1 July, big polluters would be expected to cut their emissions intensity – how much they emit per unit of production – by 4.9% a year until 2030. That was forecast to cut industrial emissions by at least 30% between 2021 and 2030, from 143m tonnes a year to no more than 100m tonnes.

Energy News

Switching to an electric car saves money. Unless you're poor. (Grist)
The decision to switch to an electric-powered vehicle benefits 9 out of 10 U.S. drivers, but the lowest income Americans get left behind, according to the results of a new study from the University of Michigan. They found that over 90 percent of vehicle-owning households would see reductions in both carbon emissions and the amount they spend on powering their car by switching to an electric vehicle. The pattern does not hold true, however, for those with the lowest incomes, more than half of whom would continue to be burdened by high transportation costs – defined as more than 4 percent of their income – after trading in their gas-guzzler for an electric car. The study found that households that would receive little benefit are concentrated in Midwestern states with coal and natural gas-reliant energy grids, as well as in Alaska and Hawaii, the two states with the highest cost of electricity.

Can clean-energy advocates stop new gas plants in North Carolina? (Canary Media)
For more than a year, critics of Duke Energy have been asking North Carolina regulators to reject the utility's $100 billion plan to meet a state mandate to cut its carbon emissions by 70 percent from 2005 levels by 2030. The reason? Duke's plan for subsidiaries Duke Energy Carolinas and Duke Energy Progress, released early last year, calls for building more than 3 gigawatts of new fossil-gas power plants over the next decade — one of the biggest gas-plant buildouts being proposed by any U.S. utility. Despite these concerns, the North Carolina Utilities Commission released a carbon plan on December 30 that largely adheres to Duke's gas-heavy vision.

Oil companies sue Los Angeles over ban on oil and gas drilling (CNBC)
An oil company with a drilling operation in the Wilmington neighborhood of Los Angeles has filed a lawsuit against the city over its law to ban new wells and phase out all drilling within city limits. Warren Resources, which operates the 10-acre, oil-extraction site, filed a lawsuit on Tuesday in LA Superior Court seeking to stop the ordinance from taking effect. The company argued the city failed to conduct an adequate environmental review of the potential impacts of halting extraction. The lawsuit also argued the ordinance constitutes a violation of the California Environmental Quality Act, the city's General Plan and the state and federal constitutions. Warren said the law would force the shutdown of its operations, which are located solely within the LA area.

Environment & Health News

World's dams to lose a quarter of storage capacity by 2050 – UN research (Reuters)
Nearly 50,000 large dams worldwide could lose more than a quarter of their storage capacity by 2050 as a result of sedimentation build-ups, eroding global water and energy security, according to United Nations research on Wednesday. Dam capacity is expected to drop from 6 trillion cubic metres (cu m) to 4.655 trillion cu m by 2050, and action must be taken to address the problem and protect vital storage infrastructure, the United Nations University said. Silt accumulates in reservoirs as a result of the disruption of natural water flows. It can cause damage to hydroelectric

turbines and cut power generation. Impeding sediment flows along a river can also make upstream regions more prone to flooding and erode downstream habitats.

Florida manatee deaths drop, but starvation still a concern (E&E News)

Manatee deaths dropped in 2022 from a record high the year before, but Florida wildlife officials said Wednesday that chronic starvation caused by water pollution remains a major concern. Preliminary statistics show 800 recorded manatee deaths last year in Florida, according to the state Fish and Wildlife Conservation Commission. That compares with more than 1,100 in 2021. Both numbers are higher than the average annual deaths of the marine mammals. The new numbers come as state and federal officials are feeding thousands of pounds of romaine lettuce to manatees at a warm-water power plant on Florida's east coast in an effort to slow manatee starvation deaths.

Dolphins Can Shout Underwater, but It's Never Loud Enough (New York Times)

Mammals in the ocean swim through a world of sound. But in recent decades, humans have been cranking up the volume, blasting waters with noise from shipping, oil and gas exploration and military operations. New research suggests that such anthropogenic noise may make it harder for dolphins to communicate and work together. [During trials, dolphins] nearly doubled the length of their calls and amplified their whistles, in a sense shouting, to be heard above cacophonies of white noise or a recording of a pressure washer. The noisier it got, the less success the dolphins had with the task.

Message

From: CSIS Energy [energy@csis.org]
Sent: 1/17/2023 11:40:13 PM
To: Laverdiere, Maria [Laverdiere.Maria@epa.gov]
Subject: New This Week

US LNG + global energy security — Ukraine's energy future + natural gas — US + the EU CBAM

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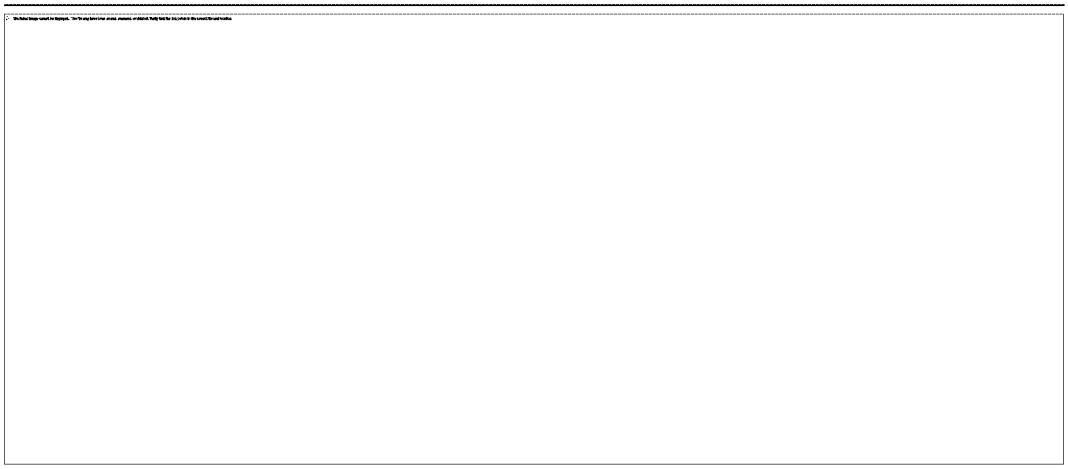
Featured Report



Source: GasVista's Leviaton

INTERACTIVE REPORT
U.S. LNG: Remapping Energy Security
by **Joseph Majkut, Leslie Palti-Guzman** with Ian Barlow — Jan. 17
Europe's wartime shift from Russian gas to U.S. LNG is reshaping global energy trade. How the United States and Europe cooperate will remain essential for the energy transition, climate action, and global energy security. Read more

Publications

The United States Should Learn to Live with EU CBAM
Joseph Majkut — Jan. 17
"[T]he United States' stake in both the development of low-carbon markets and border adjustments as a policy tool is potentially quite large." Read more

The Role of Gas in Ukraine's Energy Future
Ben Cahill, Leslie Palti-Guzman — Jan. 13
Gas plays a critical role in Ukraine's energy system. This report summarizes Ukraine's gas resources and their economic role, analyzes how natural gas investment fits with

other reconstruction priorities, and examines the role of Ukrainian gas in a lower-carbon Europe. Read more

The Defense Production Act and the U.S. Race to Build Up Clean Energy Industrial Bases
Joseph Majkut, Jane Nakano — Jan. 12
"CSIS research indicates that experience in other contexts prefers financial assistance to help companies expand production, retool, or otherwise make capital investments to reduce risk and meet future demand." Read more

Progress Report on EU Embargo and Russian Oil Price Cap
Ben Cahill — Jan. 10
"It will be challenging for Russia to find alternative buyers... But it is more likely that Russian exports will bounce back from a temporary decline in December." Read more

Energy 360°
a podcast from the CSIS Energy Security & Climate Change Program

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U.S. Energy Information Administration Priorities with Dr. Joe DeCarolis
Joe DeCarolis, Ben Cahill — Jan. 09
This week: The new EIA administrator discusses how EIA data can be most useful to policymakers and his plans for improvements in the coming year. Listen now

In Case You Missed It

CSIS \\ EUROPE, RUSSIA, AND EURASIA PROGRAM
EVENT: Sanctions and the Russian Economy
B. Cahill, S. Aleksashenko, M. Bergmann, M. Snegovaya — Jan. 19
The United States, European Union, and their partners are imposing severe sanctions on Russia for its invasion of Ukraine. Panelists will explain the major potential implications for the war and Russia's future. Register now

CSIS \\ AMERICAS PROGRAM
The Future of Hydrogen Development in the Western Hemisphere
Sunita Satyapal, Ryan Berg — Jan. 12
Guests discuss the state of play in the Western Hemisphere and some of the actions the United States is taking to promote further hydrogen development. Listen now

In the News

MARKETPLACE
Sanctions Designed to Keep the Price of Russian Oil Low Seem to Be Working
Ben Cahill

BLOOMBERG
Russia Oil-Price Cap Defies Skeptics with So Far, So Good Start
Raad Alkadiri

THE WASHINGTON POST
Biden Isn't Coming for Your Gas Stove. States Are.
Kevin Book

BLOOMBERG
Natural Gas Just Became a Kitchen-Table Issue in America
Ben Cahill

E&E NEWS
Could 2023 Be a Turning Point for U.S. Offshore Oil?
Kevin Book

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Message

From: Schutt, David [David.Schutt@mail.house.gov]
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Subject: SEEC Daily Clips 1.18.23

Sustainable Energy & Environment Coalition

January 18, 2023

SEEC Member Spotlight

Pingree calls for an investigation of propane propaganda (Maine Public)
A recent investigation by the New York Times shows that the propane industry is paying HGTV hosts and other influencers to fight the trend toward electrification and climate-friendly products like heat pumps. In a letter Tuesday, **[SEEC Vice Chair] Rep. Chellie Pingree** is calling for an investigation. The New York Times exposé found that the Propane Education and Research Council is spending millions to discourage the use of heat pumps and clean energy. Instead, hosts like HGTV's Matt Blashaw are being paid to promote propane to their viewers. Now Pingree is asking the Department of Energy and the Federal Trade Commission to investigate whether PERC has violated federal law with what she calls "a misleading, undisclosed paid promotion of the fossil fuel industry."

Top News

Fed wants climate risk analysis from 6 largest U.S. banks by July 31 (Reuters)
The Federal Reserve on Tuesday told the six largest U.S. banks to compile data on how their businesses would be impacted by climate change outcomes and the transition to a lower-carbon economy in what it called a pilot effort to ensure the financial system is prepared for the risks posed by global warming. The scenario analysis, including estimates of how real estate portfolios might be affected by "physical risk" and how corporate lending might be affected by the transition to a net-zero carbon economy by 2050, "are neither forecasts nor policy prescriptions," the U.S. central bank said. "They do not necessarily represent the most likely future outcomes." Instead, the analysis is meant to "build understanding of how certain climate-related financial risks could manifest" in terms of changes in the likelihood of loan defaults, losses, and internal risk assessments.

Why the World Is Protesting America's Climate Plan (Time)
The U.S. has faced criticism for decades for failing to implement policies to cut its emissions and address the scale of climate change. Now it is being attacked for doing just that. But the pushback is also an inevitable consequence of America's long-awaited and full-throated embrace of climate policy. Building a clean energy economy from the ground up was always going to require new materials, supply chains, and manufacturing facilities—and new trade rules to accompany them. Now, the attention turns to how the U.S.—and its partners and competitors—reconcile climate and trade considerations. A deft handling would support new investments in climate technology from governments across the globe, creating jobs and expanding economies at the same time. A poor handling would doom both the economy and decarbonization efforts.

California's storms are almost over. Its reckoning with flood insurance is about to begin. (Grist)
California has nearly seen the last of the relentless sequence of storms that inundated the state since late December, leading to tens of thousands of evacuations, at least 20 deaths, and an estimated $1 billion in damages. But in the coming weeks, as flood waters recede and the rains' full impact comes into view, many residents may find themselves facing a second crisis: A widespread lack of flood insurance that will leave thousands of homeowners grappling with the cost of repairing and rebuilding homes. Just 1.33 percent of California households have standalone policies through the National Flood Insurance Program, a federal-run system that makes up 95 percent of flood coverage in the United

States. The share of private flood policies in California is even smaller. Yet as of earlier this month, 90 percent of the state's population was under flood watch.

Climate News

One of the World's Coldest Places Is Now the Warmest it's Been in 1,000 Years, Scientists Say (Inside Climate News)
Global warming is spiking in one of the world's coldest places, atop the 2-mile thick ice sheet in central Greenland, where new research shows that the first decade of the 2000s was clearly the warmest 10 years on record in at least 1,000 years. The findings, published today in Nature, are based on some of the most detailed ice core sampling ever done in the region, which is a critical part of the planet's cooling system. By measuring chemical traces in the ice, the scientists were able to determine exact annual temperature readings for the region, and they found that, for the years 2001 to 2011, the temperature in the study area was 1.5 degrees Celsius warmer than the 20th century average.

Brazilian meat giant under fire for allegedly misleading investors (Washington Post)
A small activist group called Mighty Earth is taking on the Brazilian-based food giant JBS over whether its "green" bonds deserve that Earth-friendly connotation. In 2021, JBS, the world's biggest meat company and mammoth food-processing firm, sold $3.2 billion worth of "green bonds" linked to the company's sustainability goals. If JBS fails to reach its targets for greenhouse gas emissions, it will be penalized and will pay bondholders a "step up amount or premium payment," the company says. On Tuesday, Mighty Earth filed a complaint with the Securities and Exchange Commission alleging that JBS is already failing to meet its emissions targets. Mighty Earth wants the agency to impose penalties and injunctions on the Brazilian company, which it says has contributed to or ignored deforestation carried out by its suppliers.

Dairy giant Danone aims to cut methane emissions by 30% by 2030 (Reuters)
Danone, one of the world's biggest dairy companies, said on Tuesday that it plans to cut absolute methane emissions from its fresh milk supply chain by 30% by 2030 by working with farmers, other companies and governments on regenerative practices. Danone, which works directly with 58,000 dairy farmers across 20 countries, expects to remove 1.2 million tonnes of carbon dioxide equivalent of methane emissions by 2030. Between 2018 and 2020, the French company had reduced its methane emissions by about 14%.

Energy News

Scientists hit back at gas industry for twisting stove study (E&E News)
The furor last week over a potential ban of gas stoves sparked rants of protest and partisan posturing. But one voice was not heard amid the clamor: the researcher whose study the gas industry seized on to tout the safety of gas stoves. He says his research is being misused. The industry groups take particular issue with a peer-reviewed paper, published in the International Journal of Environmental Research and Public Health (IJERPH) last month that found 13 percent of childhood asthma cases in the United States — affecting some 650,000 kids — "is attributable to gas stove use" and could theoretically be prevented by the use of electric appliances in the home.

World's largest asset managers block climate action amid anti-ESG backlash (Energy Monitor)
Investors filed a record number of shareholder resolutions relating to environmental and social issues during 2022's proxy season. However, new analysis by non-profit ShareAction of how US, UK and European asset managers voted on these resolutions reveals that those with the biggest influence worked to block a number of key climate votes last year. Worryingly, the data reveals how the world's four largest asset managers – BlackRock, State Street Global Advisors, Vanguard Group and Fidelity Investments – have worked to block key climate votes going through. This is particularly notable within the energy sector, where the world's largest asset manager, BlackRock, went from supporting 72% of such votes in 2021 to just 16% in 2022.

New England clean energy goals slam into oil reality (E&E News)
New England power plants burned more oil for electricity on a single day during last month's deep freeze than they have in four years, underscoring the gap between Northeastern states' clean energy targets and the current resource mix in the region. Oil resources supplied 29 percent of a six-state region's power on Dec. 24 as temperatures hovered in the

teens, natural gas supplies tightened and some generators failed to perform as expected. The amount of electricity generated by oil that day was higher than it had been since a weekslong polar vortex hit New England in January 2018.

Environment & Health News

Pennsylvania now has limits on PFAS ahead of federal standards (Pittsburgh Post-Gazette)
Pennsylvania has enacted a limit on two PFAS chemicals in drinking water, marking the first time that the state has set its own limits instead of adopting a federal standard. The state's Department of Environmental Protection in November proposed the rule that would limit perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) to 18 parts per trillion and 14 parts per trillion respectively, after sampling performed on more than 400 public water systems in Pennsylvania found detectable levels of those chemicals in more than a quarter of them.

Ecuador Tried to Curb Drilling and Protect the Amazon. The Opposite Happened. (New York Times)
In a swath of lush Amazon rainforest here, near some of the last Indigenous people on Earth living in isolation, workers recently finished building a new oil platform carved out of the wilderness. Drilling in this part of the rainforest wasn't Ecuador's first choice. In 2007, Rafael Correa, the president at the time, proposed a novel alternative that would have kept the oil reserves in a parcel here designated as Block 43, estimated then at around a billion barrels, in the ground. Under that plan, countries would have created a fund of $3.6 billion, half of the oil's estimated value, to compensate Ecuador for leaving its reserves untouched. But, after early fanfare, only a pittance in contributions trickled in. Ecuador turned to China for loans, around $8 billion over the course of the Correa administration, some to be repaid in oil.

Brazil's new president faces 'scorched earth scenario' left behind by Bolsonaro (Grist)
Over four years, Bolsonaro dismantled environmental regulations, much of it through executive action, and gutted federal agencies tasked with enforcing environmental laws. His actions and rhetoric emboldened illegal miners and loggers, who felt they could act with impunity. Deforestation in the Amazon rainforest spiked 60 percent during Bolsonaro's presidency, the highest relative increase since the beginning of measurements by satellite in 1988. Lula served two previous terms as president between 2003 and 2011. During this time, in stark contrast to Bolsonaro's tenure, deforestation in the Amazon fell by a historic 67 percent.

Message

From: Schutt, David [David.Schutt@mail.house.gov]
Sent: 1/30/2023 5:45:10 PM
To: Schutt, David [David.Schutt@mail.house.gov]
Subject: SEEC Daily Clips 1.30.23

Sustainable Energy & Environment Coalition

January 30, 2023

SEEC In the News

Politico's Weekly Agriculture: Rep. G.T. Thompson has a tightrope to walk as he tries to pass a farm bill. (Politico)
Prominent Republicans are hoping to cut climate spending while Democrats are doing all they can to protect it. "There is so much money being thrown into climate change," Rep. Doug LaMalfa (R-Calif.), who last year was the top Republican on the House Agriculture Committee's Conservation Subcommittee, said when asked about where budget cuts should come from. "CO2 is not responsible. Especially American-produced CO2, I mean we're a tiny part of the whole thing." About 10 percent of U.S. greenhouse gas emissions are attributed to agriculture, according to the Agriculture Department.

It's also a critical issue for House Democrats like **[SEEC Vice Chair] Rep. Chellie Pingree (D-Maine),** who models her ideal farm bill on a blueprint drawn up by the **House Sustainable Energy and Environment Coalition** — a group of Democrats focused on climate issues — and Stabenow.

Thompson isn't as critical as some of his Republican colleagues on climate, but is critical of Democrats pushing to make climate a central focus of agriculture. He wants to maintain a hands-off approach by keeping conservation programs voluntary and continuing to boost agricultural production. Farmers "natural land solutions sequester about 6.1 gigatons of carbon … Can we strengthen those practices? Absolutely," Thompson said.

SEEC Member Spotlight

U.S. lawmakers urge UAE to drop oil chief as head of COP 28 (E&E News)
Twenty-seven U.S. lawmakers urged climate envoy John Kerry to push the United Arab Emirates to remove the official they've tapped to lead U.N. climate talks in November. In a letter sent to Kerry's office Friday evening, the lawmakers said the appointment of Sultan Al Jaber, the UAE climate envoy and head of the state-run Abu Dhabi National Oil Co., could jeopardize progress at talks that begin in late November. Led by **[SEEC Member] Rep. Jared Huffman** (D-Calif.) and Sen. Sheldon Whitehouse (D-R.I.) and co-signed by 25 other lawmakers, the letter says the United States should urge the UAE to name a different president-designate to lead the talks, known as COP 28, or "at a minimum, seek assurances" that it would promote an ambitious conference aimed at curbing carbon pollution and preventing the worst impacts of climate change.

Top News

Biden climate law spurred billions in clean energy investment. Has it been a success? (ABC News)
The majority of the funding [in the Inflation Reduction Act] took the form of tax credits meant to incentivize private investment in clean energy, such as wind and solar, and in theory, boost U.S. production of renewables as the nation pursues ambitious carbon emissions goals and a supply chain less dependent on China. The success of the strategy, however, in a large part hinged on the willingness of companies to pursue those tax credits. So far, dozens of firms have announced projects that qualify for government relief, totaling more than $40 billion in clean energy investment and adding nearly 7,000 jobs, according to a report from American Clean Power, an industry group representing green

energy companies. As the global supply chain struggles to recover from the pandemic, the early wave of investment proves the wisdom of the landmark energy law, foretelling significant growth for U.S. clean energy and easing the sector's reliance on China, some industry representatives and analysts said.

US renewable energy farms outstrip 99% of coal plants economically – study (The Guardian)
Coal in the US is now being economically outmatched by renewables to such an extent that it's more expensive for 99% of the country's coal-fired power plants to keep running than it is to build an entirely new solar or wind energy operation nearby, a new analysis has found. The plummeting cost of renewable energy, which has been supercharged by last year's Inflation Reduction Act, means that it is cheaper to build an array of solar panels or a cluster of new wind turbines and connect them to the grid than it is to keep operating all of the 210 coal plants in the contiguous US, bar one, according to the study [by Energy Innovation].

'Recession Resilient' Climate Start-Ups Shine in Tech Downturn (New York Times)
As tech companies slash perks and cut jobs, the downturn has spurred a wake-up call among many workers, causing them to question whether their company's role in society — selling ads or selling stuff, often — was actually making the world a better place. The result? More are now flocking to climate start-ups, just as investors pour money into the field. Last year, climate start-ups in the United States raised nearly $20 billion, topping 2021's high of $18 billion and nearly tripling 2020's $7 billion, according to Crunchbase, a data provider. At least 83 climate-focused companies around the world are worth more than $1 billion, according to HolonIQ, a research firm. Despite worries of a recession, enthusiasm about climate start-ups is undimmed. Laurence D. Fink, the chief executive of the investment firm BlackRock, recently declared that 1,000 more $1 billion so-called climate unicorns were on the way.

Climate News

Meet the group sharpening the GOP attack on 'woke' climate policies (Washington Post)
Bankrolled by mysterious donors, a little-known group named Consumers' Research has emerged as a key player in the conservative crusade to prevent Wall Street from factoring climate change into its investment decisions. On Dec. 1, the group joined 13 state attorneys general in calling for a federal regulatory agency to investigate Vanguard, one of the world's three biggest financial asset managers. Consumers' Research accused Vanguard of "meddling with [the] energy industry to achieve progressive political goals at the expense of market efficiency." Within days, Vanguard announced it was quitting a coalition called the Net Zero Asset Managers Alliance and shelved its own modest pledges to cut the amount of greenhouse gas emissions linked to companies in which it invests. Leaders of Consumers' Research were surprised — and elated.

Climatarian? Regenivore? New diets take aim at climate change (Axios)
Move over, locavores: A slew of new labels — from "climavore" to "reducetarian" — reflect the trend of people eating with sustainability in mind to reduce their climate "foodprint." Food manufacturers, restaurants, and supermarkets are racing to cater to the zeal for lower-carbon eating choices, which has people eschewing plastic packaging, ingredients flown in from afar, and foods that are environmentally damaging to produce. Yes, but: Eyebrows must be raised about the amount of greenwashing involved in corporate efforts to embrace climatarianism.

In the Fight Over Gas Stoves, Meet the Industry's Go-To Scientist (New York Times)
When Multnomah County in Oregon convened a recent public hearing on the health hazards posed by pollution from gas stoves, a toxicologist named Julie Goodman was the first to testify. Studies linking gas stoves to childhood asthma, which have prompted talk of gas-stove bans in recent weeks and months, were "missing important context," she said. What Dr. Goodman didn't tell the crowd was that she was paid to testify by a local gas provider. Dr. Goodman is a toxicologist who works for Gradient, a consulting firm that provides environmental reviews for corporations. She appeared at the county hearing on behalf of NW Natural, the local utility that is heavily reliant on gas, an affiliation she didn't state during her testimony. In recent months, Dr. Goodman has also worked with the American Gas Association, the industry's main lobby group, to help it counter health concerns linked to gas.

Energy News

White House blasts Big Oil stock buybacks again as Chevron profits double (Reuters)
The White House on Friday launched a fresh attack against U.S. oil companies, accusing them of using profits to pay shareholders instead of boosting supply, after Chevron Corp said its annual profit doubled for 2022. Chevron posted a record $36.5 billion profit for 2022 that was more than double year-earlier earnings, kicking off what analysts expect to be a bumper earnings season for global energy suppliers. Earlier this week, Chevron said it would triple its spending on share repurchases to $75 billion over five years at current guidance. Other oil companies are expected to follow suit.

Ukraine war to accelerate shift to clean energy, BP says (Reuters)
Russia's war in Ukraine is expected to weigh on long-term energy demand and accelerate the world's shift to renewables and low-carbon power as countries boost domestic energy supplies, BP said in a report on Monday. In its benchmark 2023 Energy Outlook, BP Plc said the Ukraine war will slow global economic activity by 2035 by around 3% compared with last year's forecast due to higher food and energy prices as well as reduced trade activity. BP lowered its oil and gas demand forecast in 2035 by 5% and 6%, respectively, under its central forecast scenario that is based on governments' current energy transition plans. The changes are focused mostly in Europe and Asia which rely heavily on energy imports, BP said.

Inside the high-dollar race to sell natural gas as low-carbon (Canary Media)
Natural gas long has been marketed as a "bridge fuel" to a cleaner energy future — a dependable energy source that, when burned to generate electricity, produces about half as much carbon dioxide as does coal. But scientific studies over the past decade have underscored that neither natural gas in general nor LNG in particular is as clean as previously claimed. Each step in the production and distribution of natural gas leaks methane, a hydrocarbon that is, pound for pound, roughly 80 times as damaging to the climate as carbon dioxide for the first 20 years after it's emitted, making methane a crucial target for near-term climate action. The gas industry, under mounting pressure from investors and regulators, is scrambling to shrink the carbon footprint of natural-gas production. But, to make natural gas climate-neutral, it will have to do far more.

Environment & Health News

How companies greenwash their plastic pollution (Popular Science)
In a recent One Earth study, the authors looked into the commitments made by the world's largest companies between 2015 to 2020 to reduce plastic pollution. Based on the study, about 72 percent of the world's largest companies have made some form of commitment to reducing plastic pollution, which ranges from one line of text to many pages of commitment. There's no penalty for not fulfilling a non-binding commitment, especially when it comes from the company itself. Lightweighting is a practice where companies slightly reduce the volume of plastic in their packaging, like making thinner PET bottles or shorter bottle caps, which you've probably already noticed in your local grocery store. While it's good that companies produce lighter and smaller plastic products, if they reinvest their savings into markets that involve new plastic products, they might only increase the total mass of plastic produced, says Diana.

Why whale deaths are dividing environmentalists – and firing up Tucker Carlson (Politico)
[A] recent spate of beached whales in the Northeast is exposing rifts among activists, energizing Republicans and threatening to complicate one of President Joe Biden's top energy goals. Since December, at least nine whales have been stranded on beaches in New Jersey and New York. The deaths are happening as pre-construction work ramps up on offshore wind farms, which are a key part of the nation and New Jersey's climate change strategy. There is no evidence the wind work and whale deaths are linked. But Clean Ocean Action, a 40-year-old nonprofit, believes the two things happening at once may be more than just a fluke. The group, which has been one of the few environmental organizations to criticize offshore wind, is using the whale deaths to push for a halt of offshore wind development until officials can figure out what is going on. Its message is spreading.

California Activists Redouble Efforts to Hold the Oil Industry Accountable on Neighborhood Drilling (Inside Climate News)
California's landmark buffer zone law, Senate Bill 1137, was designed to [protect environmental justice communities] by mandating a roughly half-mile setback [between new oil wells and neighborhood sites]. But days after Newsom signed the law in September, the oil industry filed a referendum to overturn it. Now, environmental justice advocates are mobilizing allies to hold the line against oil industry polluters' multimillion-dollar campaign to reverse what community

leaders call the most significant environmental win in years. Neighborhood oil drillers are determined to stop it. They spent more than $20 million in just three months to circulate petitions and get their repeal measure on the 2024 ballot.

Message

From: Luk, Sheron [Sheron.Luk@mail.house.gov]
Sent: 2/24/2023 5:20:59 PM
To: Luk, Sheron [Sheron.Luk@mail.house.gov]
Subject: SEEC Daily Clips 2.24.23

Sustainable Energy & Environment Coalition

February 24, 2023

Top News

EPA outlines another $550 million toward addressing environmental inequity (The Hill)
The Environmental Protection Agency announced another $550 million that it is putting toward addressing environmental inequity. The EPA will select up to 11 community-based nonprofits that will then dole out grants as part of an effort to make it easier for communities who may not have the resources to complete a challenging federal application, the agency said.

The U.S. Has Billions for Wind and Solar Projects. Good Luck Plugging Them In. (New York Times)
The energy transition poised for takeoff in the United States amid record investment is facing a serious obstacle: The volume of projects has overwhelmed the nation's antiquated systems to connect new sources of electricity to homes and businesses. More than 8,100 energy projects were waiting for permission to connect to electric grids at the end of 2021, jamming the system known as interconnection.

Biden's climate club will get a new member (E&E News)
The Labor Department hasn't always been a climate agency. It is now, thanks to the Biden administration's push to focus on climate across the federal government. And with Labor Secretary Marty Walsh leaving, President Joe Biden has the opportunity to add another top official to his climate Cabinet.

Climate News

Which U.S. cities will fare best in a warming world — and which will be hit hardest? (Washington Post)
Global warming will reshape the economies of American cities, and at the top of the list of metro areas that will be worst hit is San Francisco, according to a report by Moody's Analytics. The economic research firm looked at the way climate-change-driven challenges interact with local economies to determine which of the United States' 100 most populous metropolitan areas had the greatest risks in the coming decades.

A looming El Niño could give us a preview of life at 1.5C of warming (Grist)
The planet hasn't seen a strong El Niño since 2016 — the hottest year ever recorded — and the next El Niño will occur on top of all the warming that's occurred since then. El Niño's return could push the world past a threshold that scientists have been warning about, giving people a temporary glimpse of what it's like to live on a planet that's 1.5 degrees Celsius warmer (2.7 degrees Fahrenheit) than preindustrial times.

How Weather Forecasts Can Help Dams Supply More Water (Yale Environment 360)
The U.S. Army Corps of Engineers is testing ways to use improved weather forecasts to manage some of the nation's largest dams to store more water and prevent floods. This new approach could help officials respond to new precipitation patterns brought on by climate change.

Energy News

Biden admin details plans for floating wind (E&E News)
The Biden administration announced initiatives yesterday to prepare states for floating offshore wind — a young but fast-emerging type of power that some say could revolutionize renewables on the West Coast. The plans from the White House, Department of Energy and other federal agencies include a 20-month study on how to build out transmission networks that would link the West Coast's grid to first-of-their-kind floating wind projects.

Used EV Prices Are Falling Just in Time for a New US Tax Credit (Bloomberg)
Since the beginning of this year, US car buyers have been able to get a federal tax credit of up to $4,000 for the purchase of a used electric vehicle. It's the first time that federal credits have been extended to used vehicles. Already, the incentive and its accompanying price cap are sending ripples through the market, according to data from Seattle-based startup Recurrent, and helping to increase the availability of affordable EVs.

DOE rule may block 50% of current gas stove models (E&E News)
Half of gas stove models sold in the United States today won't comply with a first-ever efficiency regulation on cooking appliances, according to a new analysis from the Department of Energy. The projection aims to provide more clarification on the expected impact of a proposal earlier this month. DOE says the cooking regulation will preserve some market share for gas stoves that have at least one high-input rate burner and continuous cast iron grates, two features that DOE determined are priorities for the public.

Environment & Health News

Cutting air pollution improves children's lung development, study shows (The Guardian)
Reducing air pollution could improve lung function development in children and cut the numbers of young people with significant pulmonary impairments, research suggests. The impact of air pollution on health has become a topic of intense concern in recent years, with research suggesting it can affect every organ in the body and the World Health Organization noting children's developing organs and nervous systems are more susceptible to long-term damage.

More than 43,000 aquatic animals are dead near Ohio train derailment (Washington Post)
Ohio residents with headaches and nausea around the site where a train carrying hazardous chemicals veered off the tracks are worried about the long-term impact of the derailment on human health. But the effect on animals is already becoming clear. The derailment in East Palestine potentially killed more than 43,000 fish, amphibians, crustaceans and other aquatic animals in nearby streams, state officials said Thursday.

This 'climate-friendly' fuel comes with an astronomical cancer risk (The Guardian)
The Environmental Protection Agency recently gave a Chevron refinery the green light to create fuel from discarded plastics as part of a climate-friendly initiative to boost alternatives to petroleum. But, according to agency records obtained by ProPublica and the Guardian, the production of one of the fuels could emit air pollution that is so toxic, one out of four people exposed to it over a lifetime could get cancer.

SEEC Vice Chairs are Reps. Don Beyer (D-VA), Matt Cartwright (D-PA), Sean Casten (D-IL), Chellie Pingree (D-ME), and Katie Porter (D-CA).

SEEC Chair Emeritus is Rep. Gerry Connolly (D-VA).

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Message

From: Schutt, David [David.Schutt@mail.house.gov]
Sent: 1/10/2023 4:55:41 PM
To: Schutt, David [David.Schutt@mail.house.gov]
Subject: SEEC Daily Clips 1.10.23

Sustainable Energy & Environment Coalition

January 10, 2023

SEEC Member Spotlight

US Safety Agency to Consider Ban on Gas Stoves Amid Health Fears (Bloomberg)
A federal agency says a ban on gas stoves is on the table amid rising concern about harmful indoor air pollutants emitted by the appliances. The US Consumer Product Safety Commission plans to take action to address the pollution, which can cause health and respiratory problems. Lawmakers have weighed in, asking the commission to consider requiring warning labels, range hoods and performance standards. In a letter to the agency in December, lawmakers including Senator Cory Booker of New Jersey and **[SEEC Member] Representative Don Beyer of Virginia**, both Democrats, urged action and called gas-stove emissions a "cumulative burden" on Black, Latino and low-income households that disproportionately experience air pollution.

Grijalva blasts provision in House rules package making it easier to transfer public land ownership (The Hill)
The top Democrat on the House Natural Resources Committee blasted a provision in the proposed House rules package that would make it easier to transfer public lands, calling it an indication the new GOP majority intends to pursue a broadly pro-industry agenda. The proposed rules package, made public Friday, includes a provision streamlining the process by which ownership of federal lands passes from the federal government to states or localities. The provisions are similar to those passed during the 115th Congress, the last session in which Republicans controlled the House, **[SEEC Member] Rep. Raúl Grijalva (D-Ariz.)** told The Hill on Monday.

Top News

U.S. Carbon Emissions Grew in 2022, Even as Renewables Surpassed Coal (New York Times)
America's greenhouse gas emissions from energy and industry increased 1.3 percent in 2022, continuing to rebound from an abrupt pandemic decline in 2020 but not quite reaching prepandemic levels, according to preliminary estimates published Tuesday by the Rhodium Group, a nonpartisan research firm. Emissions ticked up even as renewable energy surpassed coal power nationwide for the first time in over six decades, with wind, solar and hydropower generating 22 percent of the country's electricity compared with 20 percent from coal. Growth in natural gas power generation also compensated for coal's decline.

What the House speaker's deal with ultraconservatives means for climate (Grist)
The compromises McCarthy made in exchange for the speaker's gavel could reshape the way the lower chamber operates. [A] plank of the deal McCarthy struck with his hard-right colleagues [puts] a cap on discretionary spending — money approved by Congress and the president every year through the annual appropriations process. New limits on that funding could affect clean energy research overseen by the Department of Energy, limit the Interior Department's conservation efforts, and restrict disaster recovery distributed by the Federal Emergency Management Administration, among other projects. Other elements of the deal, such as putting members of the ultraconservative Freedom Caucus on the House Rules Committee, which plays a pivotal role in influencing how legislation moves through the House, could have an indirect impact on climate policy by affecting the legislation lawmakers even get to vote on.

After a Decade, Federal Officials Tighten Guidelines on Air Pollution (Inside Climate News)

For the first time in a decade, the Environmental Protection Agency has proposed tougher standards for pollution from PM 2.5, small, inhalable airborne particles about one-thirtieth of the width of a human hair that are linked to a range of health harms, from heart and lung ailments to asthma and other respiratory conditions. The EPA announced plans on Friday to lower the annual standard for PM 2.5 from a level of 12 micrograms per cubic meter to between 9 and 10 micrograms per cubic meter. Environmental activists, who have long urged the government to tighten its regulations, said the new proposal doesn't go far enough in addressing the hazards from PM 2.5.

Climate News

Biden administration plan seeks elimination of transportation emissions (Washington Post)
The Biden administration released a road map Tuesday for eliminating carbon emissions from the transportation sector by the middle of the century, calling for more walkable communities, investments in buses and trains, and the rapid adoption of electric vehicles. The plan, developed by the departments of Energy, Transportation and Housing and Urban Development, as well as the Environmental Protection Agency, is the first of its kind. It pairs changes to the layout of communities to make Americans less dependent on cars and a switch from gas to batteries to meet a goal scientists say is necessary to avoid the worst effects of climate change.

How sending climate aid abroad helps the U.S. (E&E News)
For years, the world's wealthiest nations have dragged their feet on sending climate aid to developing countries. One obstacle — perhaps the biggest obstacle — is convincing politicians in the United States, United Kingdom and elsewhere that climate investments abroad can make a difference back home. But experts say that viewpoint is shortsighted. They argue that climate investments in developing countries offer some of the cheapest and best opportunities to avoid runaway warming and preserve geopolitical stability. And they warn that the United States sells itself short when it under-funds international climate efforts, as Congress did last month with the latest federal spending bill.

Washington state just started capping carbon emissions. Here's how it works. (Grist)
Washington state rang in the New Year with the launch of its most ambitious plan to slash carbon pollution. The new "cap-and-invest" program is designed to follow in the footsteps of California, where a cap-and-trade system began in 2013, while trying to learn from its missteps. [T]he Climate Commitment Act works by setting a statewide "cap" on greenhouse gas emissions that steadily lowers over time. Washington, like California, is establishing a market for businesses to buy pollution "allowances" that will become increasingly expensive — an incentive to cut emissions and a way to raise money to counter climate change.

Energy News

White House puts a 'thumb on the scales' for green energy (E&E News)
Greenhouse gas guidance released by the White House last week could make it easier for climate-friendly projects to receive federal permits, while creating new barriers for high-carbon infrastructure. The Council on Environmental Quality's interim guidance on greenhouse gases, which took effect Monday, expands on an Obama-era directive requiring agencies to consider climate change in reviews they conduct under the National Environmental Policy Act. The more prescriptive new guidance asks agencies to undertake a comprehensive analysis of the likely climate consequences of major projects before issuing permits. That means pipelines, liquefied natural gas terminals and fossil fuels lease sales will be reviewed through the prism of a sizable carbon price tag that is likely to make them less attractive — and potentially harder for agencies to defend a decision to permit them.

House Republican fires opening salvo on energy permitting (E&E News)
A senior House Natural Resources Committee Republican offered an early preview Monday of how the GOP will seek to overhaul the permitting process for energy projects with its new House majority. While the approach, which deals with the hardrock mining industry, is one that's sure to galvanize Republicans, it isn't likely to attract the bipartisan coalition necessary for passage in the Democratic-controlled Senate. That won't deter Rep. Pete Stauber of Minnesota, incoming chair of the Subcommittee on Energy and Mineral Resources, who is looking to forge ahead with a legislative agenda that mirrors the party's larger willingness to revisit the National Environmental Policy Act — a sacrosanct law to most Democrats — and cut regulations in the pursuit of U.S. energy independence and dominance.

Texas Project Will Use Wind to Make Fuel Out of Water (Inside Climate News)

Oil made Texas an energy giant, but even this petroleum powerhouse is working hard to secure a footing beyond fossil fuels. It already generates more wind energy than any other U.S. state, and soon the mighty air that lashes its high plains will power a novel new process: the production of vehicle fuel from water. Scientists say this technology, called "green hydrogen," plays a big part in the world's hopes to transition from fossil fuels and reduce carbon emissions. Until recently, green hydrogen fuel production cost too much to compete with gasoline or diesel. But that is changing quickly thanks to steep subsidies offered in the federal Inflation Reduction Act passed in June.

Environment & Health News

UN says ozone layer slowly healing, hole to mend by 2066 (Associated Press)

Earth's protective ozone layer is slowly but noticeably healing at a pace that would fully mend the hole over Antarctica in about 43 years, a new United Nations report says. A once-every-four-years scientific assessment found recovery in progress, more than 35 years after every nation in the world agreed to stop producing chemicals that chomp on the layer of ozone in Earth's atmosphere that shields the planet from harmful radiation linked to skin cancer, cataracts and crop damage.

Can California's massive rain solve its historic drought? (Washington Post)

California could get 22 trillion gallons of rain in the coming days. But what does that mean for the state's drought? In a perennial problem that even when California does get rain, much of it runs off into the ocean or is otherwise uncollected. But there's new storm water technology that could help change that, scientists say, as the decades-old discipline shifts to help water managers collect rainwater, purify it and store it for times of drought. Much of the new technology is often referred to as "green infrastructure," and can be a more subtle way to collect rainwater off the roofs of houses or sidewalks, and have it sift through porous concrete or grassy fields into reservoirs for later use.

Global pollinator losses causing 500,000 early deaths a year – study (The Guardian)

The global loss of pollinators is already causing about 500,000 early deaths a year by reducing the supply of healthy foods, a study has estimated. Three-quarters of crops require pollination but the populations of many insects are in sharp decline. The inadequate pollination that results has caused a 3%-5% loss of fruit, vegetable and nut production, the research found. The lower consumption of these foods means about 1% of all deaths can now be attributed to pollinator loss, the scientists said. The researchers considered deaths from heart disease, stroke, diabetes, and some cancers, all of which can be reduced with healthier diets. The study is the first to quantify the human health toll of insufficient wild pollinators.

Message

From: Becky Selle [becky@weststreetrecovery.org]
Sent: 3/10/2023 3:40:23 PM
To: Millan, Vanessa [Millan.Vanessa@epa.gov]
CC: felix@weststreetrecovery.org; Zuckerman, Rachel (she/her/hers) [Zuckerman.Rachel@epa.gov]
Subject: Re: Input Requested - West Street Recovery: Friday, March 10 – EPA Greenhouse Gas Reduction Fund Community Roundtable

Hi Vanessa,
Sorry for the late reply but here's an outline of related work we're doing,

Becky Selle, Felix Kapoor, and Billy Guevera

Organization: West Street and Northeast Action Collective

Below is an overview of projects we're working on that reduce greenhouse gas emissions and other air pollution. We focus in northeast Houston in zip codes 77016, 77020, 77026, 77028 and 77078.

1.

2. A pilot **Solar Equity Program** with Solar United Neighbors building off a solar coop in Houston to provide rooftop solar at no cost to the homeowner in LMI and 'hard to reach' neighborhoods. 10 members of the Northeast Action Collective are getting rooftop solar. This lowers electricity bills, increases renewables and lowers emissions, gives ownership, and increases neighborhood perception and connection to green movements.

We are also pairing three rooftop solar arrays with **household batteries** giving these three homes energy independence. These homes are **'hub houses'** which are community member homes which are equipped with supplies to support them, neighbors, and friends in disasters such as flooding, hurricanes, power outages, chemical fires, and extreme heat and cold. Supplies include medical supplies, food and water, light, rescue equipment, and sanitary and hygienic supplies. Each hub also has several **smaller portable batteries** and solar panels that can be lent out for use in a power outage to supply essential equipment like oxygen concentrators. The household batters and portable batteries offer a safe, dependable backup power source (much safer than generators or running your stove for heat) which is essential given the instability of the Texas grid and frequency of severe weather events. In previous storms so many people have died or been severely mentally and physically harmed from not having prolonged access to power, especially during extreme cold and heat or using unsafe ways to try to survive. Respiratory problems are extremely high in frontline communities and many people rely on electronic medical equipment to live.

Solar and batteries are usually inaccessible to LMI and BIPOC people given the high cost, but that's who needs them the most, especially in socially vulnerable and frontline communities.

2.

3. **Home repair** program focused on doing full repairs at once, using low-energy and green materials, using materials that can withstand future weather events, doing repairs to limit further damage, and doing repairs **at no cost and at any time, not just after disasters**. Home repair is needed both because of the frequency of disaster events such as flooding and freezes and because LMI BIPOC areas have been excluded from money and resources to keep homes in good standing and livable conditions. A healthy and secure home is a basic need. **Doing home repair in this style greatly reduces the waste produced from destroyed homes and reduces the need to manufacture and transport new materials which reduces emissions**.

Through our home repair programs we're fully repairs 30 homes and done repairs on over 300 in the last 5 years. Our program:

4.
5.

a.

b. Prioritizes fixing homes quickly and preventing further damage such as fixing a roof or removing mold.

c.

d.

e. Use greener materials and energy efficient design, such as split ac, heat pump water repair, energy efficient appliances, and full insulation - rather than cheap repair that is not energy efficient and has to be replaced later (although limitations of available funds push everyone towards cheap, temporary repair).

f.

g.

h. Repairing rather than demolishing

i.

j.

k. Use materials that can survive a future flood and freeze : tile floors, metal cabinets, foam insulation, PEX piping

3.

4. Advocacy to government and industry to:

5.
6.

a.

b. **Reduce emissions and stop the expansion of toxic industry and manufacturing, especially close to our community**. Some examples include:

c.
d.

i.

ii. Concrete batch plants

iii.

iv.

v. New truck stops and highway expansion

vi.

vii.

viii. Landfill

ix.

x.

xi. Increased train traffic

xii.

xiii.

xiv. TQEC is too soft on regulations and has minimal oversight

xv.

xvi.

xvii. There's no pathway that works to report problems and have them solved

xviii.

xix.

xx. There's still new development rapidly happening in floodplains

xxi.

xxii.

xxiii. Petrochemical plants need to be ready for disasters, we know disasters are coming and that can't excuse excess emissions.

e.

f.

g. **Fix the Texas power grid.**

h.

i.

.

i. Increase renewables, stabilize the grid

j.

k.

l. **Build flood infrastructure that protects LMI and BIPOC areas from regular rain and severe weather events. .**

m.

n.

.

i. This could prevent so much destruction, run-noff, need for new materials, spills and excess emissions and therefore greenhouse gas reductions.

ii.

iii.

iv. Infrastructure has to be planned for current conditions of the climate crisis

v.

vi.

vii. Rain and storms are getting worse

viii.

ix.

x. Flood infrastructure can't destroy natural storm protection and important habitats such as Ike Dike. We can't keep destroying to protect ourselves from destruction we already caused.

xi.

xii.

xiii.

It is a basic human right to breathe clean air and not get poisoned and ill from existing in the neighborhood you were born in, chose to live in, or were forced to live in. Communities should have the power to decide what is in their community. Noone should live next to industry like petrochemical and concrete plants, landfills, or new highways.

We hope the greenhouse gas reduction fund invests in solar, batteries, and home repair and invests in community organizations trying to advocate for health, safety, and clean air.

On Wed, Mar 8, 2023 at 2:04 PM Millan, Vanessa <Millan.Vanessa@epa.gov> wrote:

> Greetings West Street Recovery team,

Thank you for confirming your attendance to the EPA roundtable this Friday, 3/10.

We are expecting 30 participants to attend, representing 14 organizations. To ensure ample time for every organization to share, we ask that each organization destinate **one** representative to provide remarks for **3-minutes**. Specifically, we would like for participants to address the following questions during the community roundtable:

- What projects are you already working on or would like to see Greenhouse Gas Reduction Fund support to reduce greenhouse gas emissions and other air pollution in Houston?
- Why is this project important to the community?
- What is needed to bring this project to fruition?

Ahead of the roundtable, could you please share with us a brief overview of the community-scale projects your organization is working on or would like to work on? We would appreciate if you are able to send us this information via email by **tomorrow at 2pm .**

At this event, the EPA Administrator Regan and GGRF Acting Director Jahi Wise will discuss the Greenhouse Gas Reduction Fund (GGRF) and then hear from participants about the types of greenhouse gas reducing projects that they are developing in their communities.

Background on Greenhouse Gas Reduction Fund:
The Greenhouse Gas Reduction Fund (GGRF) is a historic new EPA program created by President Biden's Inflation Reduction Act. This first-of-its kind program will provide nearly $27 billion in competitive grants to mobilize financing and leverage private capital for clean energy and climate projects that reduce greenhouse gas emissions – with an emphasis on projects that benefit low-income and disadvantaged communities. Learn more about the GGRF and recent announcements at www.epa.gov/ggrf.

Please let us know if you have any questions.

Thank you!

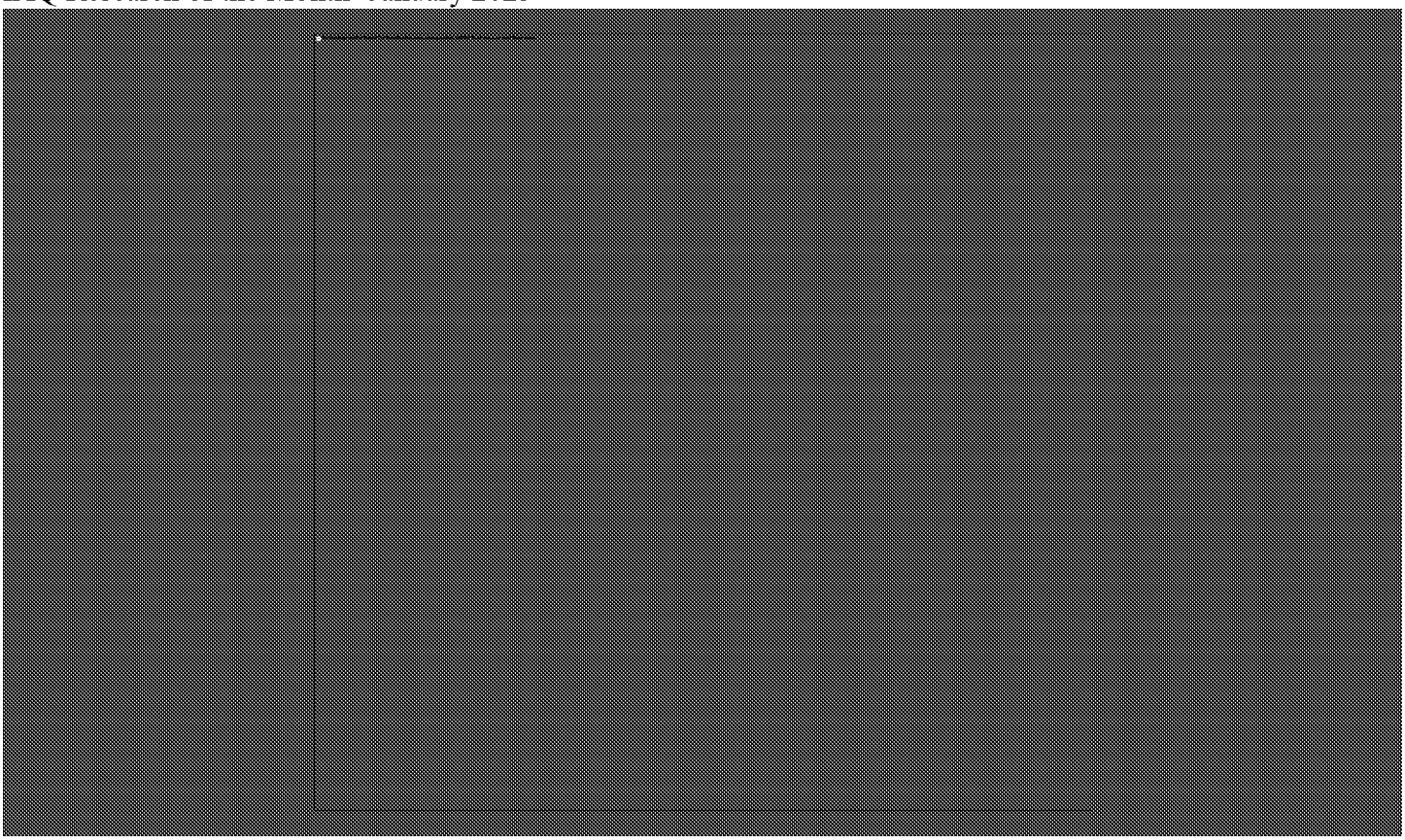
Vanessa Millán
Public Engagement Specialist
Office of Public Engagement and Environmental Education
Office of the Administrator
U.S. Environmental Protection Agency
202-891-8207| she/her


UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

Message

From: Ian Cull [icull@indoorscience.com]
Sent: 1/31/2023 9:02:05 PM
To: Nunez, Alejandra [Nunez.Alejandra@epa.gov]
Subject: IAQ Research of the Month- January 2023

IAQ Research of the Month- January 2023



IAQ Research of the Month

January 2023

Summaries of the latest indoor air quality (IAQ) and COVID research

Research Summaries

Ultraviolet-based air cleaners can negatively affect indoor air quality by producing unwanted particles and chemicals. *Environmental Science & Technology Letters*

A separate model-based study found that germicidal UV lights formed oxygenated VOCs (OVOCs) and secondary organic aerosol (SOA), both of which may have negative health effects. *Environmental Science & Technology Letters*

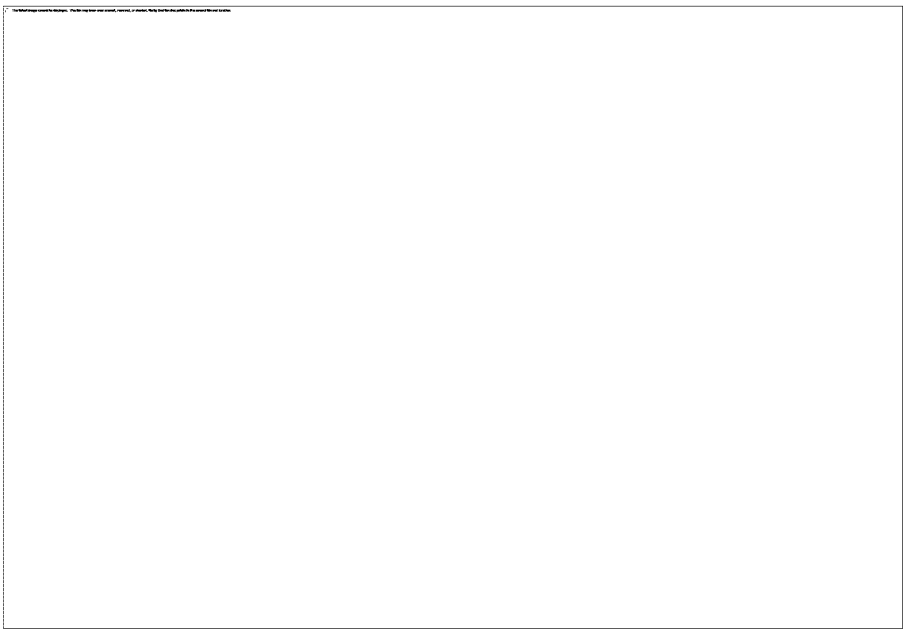
This review study found that 12.7% of current childhood asthma in the US is attributable to gas stove use. *International Journal of Environmental Research and Public Health*

Using modeling software, this study found that in-duct air treatment would be insufficient for mitigating COVID infection risks and additional in-room treatment devices would be needed. The study also found there is potential for zone-to-zone transmission. *Buildings*

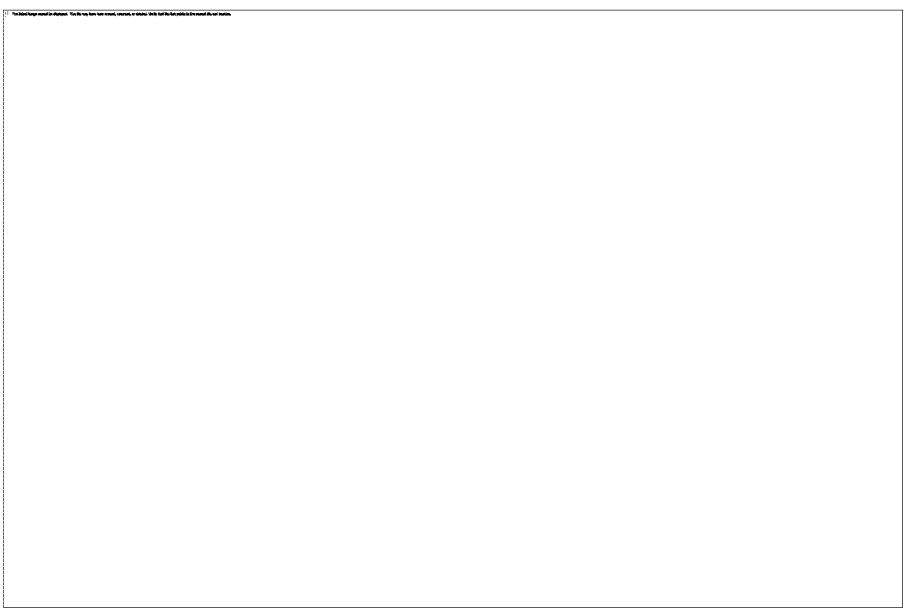
Over decades of exposure to particulate matter, the lymph nodes connected to the lungs become clogged with particles, and as a result, they are not able to carry out essential functions. *Nature Medicine*

COVID transmission was found to travel across rooms and floors through structural defects. *Emerging Infectious Disease*

Transitioning to WELL Building certified offices had a positive impact on occupant satisfaction, occupant perceived health, well-being, and productivity. *Building and Environment*



This study found different effects from exposure to particulate matter (PM) indoors vs outdoors. Indoor PM2.5 from occupied residences caused higher inflammation in mice compared to outdoor PM2.5. *Indoor Air*



Prenatal exposure to ambient air pollution may increase the risk of childhood allergy and asthma. Air pollution exposure during pregnancy can have independent, long-term health effects in offspring. *JACI*

This Australian study found maintaining indoor temperatures around 76-77° during the summer can reduce energy consumption without sacrificing thermal comfort. *Buildings*

Over 90% of indoor ozone and hydrogen peroxide deposits onto indoor surfaces. *Atmospheric Environment*

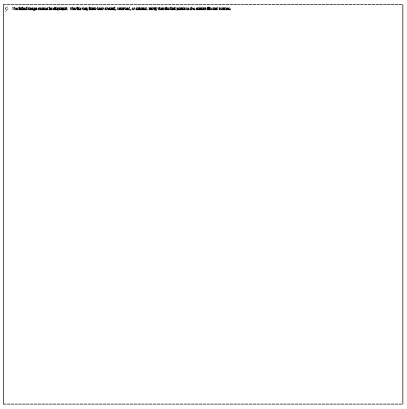
Featured Online Course: CIE/CIEC

You can take our most popular class, the Indoor Environmentalist Course, **online** without needing to travel. The 32-hour online class includes sections on contaminants, health effects, HVAC, building science, standards, remediation, and more. The course prepares students for the Certified Indoor Environmentalist (CIE) and Certified Indoor Environmental Consultant (CIEC) exams, offered through the ACAC. You can access the video-based content at any time so you can complete the course when it's convenient for you.

To register, click: Indoor Environmentalist (CIE/CIEC) Online Course.

Additional Resources

- Germicidal UV: a tradeoff between disinfection and indoor smog
- Ventilation in Schools: A Review of State Policy Strategies
- Covid, RSV and the flu: A case of viral interference?
- EPA's updated information on low-cost air quality sensors
- US federal agencies commit to cleaner indoor air
- ASHRAE Commits to Developing an IAQ Pathogen Mitigation Standard
- Mask Wars, a video by The New England Journal of Medicine
- A review of test methods and standards for portable air cleaning units



I suggest you check out the artificial intelligence chatbot ChatGPT, which requires a quick and free registration. I asked it to write a poem about indoor air quality. Here is a link to what it wrote after a few seconds, "There once was a house with poor IAQ..." It is a powerful tool that does way more than write funny poems; it helped me conduct statistical analyses on data from a project.

Ian Cull, PE, CIH
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Aurora, IL 60504

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January 3, 2023

Honorable Michael Regan
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Re: *EPA's Definition of PFAS*

Dear Administrator Regan,

Thank you for your ongoing commitment to address the PFAS crisis and to provide relief and protection for communities across the country whose drinking water has been contaminated by PFAS. EPA has taken several important preliminary steps toward addressing the legacy of widespread PFAS pollution, particularly for PFOA and PFOS. However, as the production, use and disposal of PFAS continues to grow, it is critical that the Agency's policies not repeat previous mistakes of underestimating the scope of the PFAS crisis, or discounting the harm posed by the full class of PFAS.

We are writing today to urge EPA to adopt an Agency-wide science-based definition of PFAS that will ensure that all PFAS, including those with one fully fluorinated carbon atom, or two or more non-adjacent fluorinated carbon atoms, do not spread undetected over the next decade. We ask EPA to adopt a definition of PFAS that is based on the hazard characteristic of persistence that defines the full class of PFAS and is in line with the definition widely used by states of "at least one fully fluorinated carbon atom". [1] Adopting an Agency-wide definition that captures the full scope of PFAS chemicals is critical to meeting the Administration's goals of addressing the PFAS crisis, advancing environmental justice, and restoring scientific integrity to EPA.

As you know, EPA is currently working on a rule under the Toxic Substances Control Act (TSCA) – mandated by Congress in the FY20 National Defense Authorization Act (NDAA) -- that will require reporting on PFAS manufacturing, use, disposal, and exposure. EPA's proposed rule used what the Agency calls a "working definition" of PFAS, which defines PFAS to be a chemical containing two

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[1] Such a definition would be consistent with the consensus recommendation released by the Organization of Economic Cooperation and Development (OECD) in 2021: "PFASs are defined as fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), i.e. with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF3) or a perfluorinated methylene group (–CF2–) is a PFAS."

OECD. "Reconciling Terminology of the Universe of Per- and Polyfluoroalkyl Substances: Recommendations and Practical Guidance." Series on Risk Management, July 9, 2021. [HYPERLINK "https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/CBC/MONO(2021)25&docLanguage=En"].

adjacent fluorinated carbon atoms, with at least one of them fully fluorinated. The Agency's "working definition" is too narrow, excluding hundreds, perhaps thousands, of PFAS, including substances that have multiple fluorinated carbon atoms that are not adjacent or that have one fully fluorinated carbon atom. If the working definition is adopted, these excluded PFAS are likely to go undetected, and their releases unreported, depriving the agency and the public of critical exposure information.

The Agency received comments from a range of stakeholders on the proposed rule, urging EPA to adopt a broader definition, such as the "at least one fully fluorinated carbon atom" definition or the consensus definition published by the Organization of Economic Cooperation and Development (OECD). Commenters seeking the broader definition included drinking water utilities associations (AWWA, AMWA and ACWA), state environmental agencies (ASDWA, NACWA, and ECOS), independent scientists with expertise in PFAS, environmental and health NGOs, and 17 Attorneys General.

While EPA has stated that the "working definition" focuses on chemicals for which there is more likely to be exposure, a definition premised on likelihood of exposure is neither science-based nor health protective. The Agency has offered no data to support its assertion, and some of the PFAS excluded by the "working definition" have already been found in drinking water, including in the Cape Fear River Basin in North Carolina. This is just one example of how a narrow definition fails to capture PFAS currently and historically manufactured. It could also fail to capture PFAS that could be generated in the future, or as byproducts or degradation products in the lifecycle of PFAS manufacture and use. Widespread environmental contamination and human exposure to some of these PFAS has already been documented.[2] While the Office of Water used a slightly broader definition of PFAS in its final Contaminant Candidate List 5 (CCL5), it is still insufficient to capture many other PFAS that people may be exposed to. In particular, neither the "working definition" or the definition used for the CCL5 list includes ultra-short chain PFAS that are currently manufactured or created as byproducts or degradants of other chemicals.

EPA's reliance on narrow definitions is troubling in several respects. If the PFAS Reporting rule is finalized using the EPA's proposed "working definition" or even a slightly broader definition then EPA, Congress, and the public will be denied essential information that is necessary to understand the scope of, and sources responsible for, the PFAS crisis. EPA, the states, Congress, and the public, cannot craft informed and effective strategies to prioritize and regulate PFAS without this information. In addition, EPA's "working definition" denies the public information about the large volume of PFAS being disposed of and likely re-distributed into overburdened communities when incinerated. We found data on six PFAS in the initial 2020 TRI dataset that were not labeled by the EPA as PFAS – these PFAS made up around 87% of the total reported PFAS production waste.[3] These examples also raise concerns for how

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[2] Pickard, Heidi M., Alison S. Criscitiello, Daniel Persaud, Christine Spencer, Derek C. G. Muir, Igor Lehnherr, Martin J. Sharp, Amila O. De Silva, and Cora J. Young. "Ice Core Record of Persistent Short-Chain Fluorinated Alkyl Acids: Evidence of the Impact From Global Environmental Regulations." *Geophysical Research Letters* 47, no. 10 (2020): e2020GL087535. [HYPERLINK "https://doi.org/10.1029/2020GL087535"].

[3] Reade, Anna, and Yiliqi. "New EPA Data: Huge Amounts of PFAS Underreported and Burned." *NRDC* (blog), October 21, 2021. [HYPERLINK "https://www.nrdc.org/experts/yiliqi/new-epa-data-huge-amounts-pfas-underreported-and-burned-0"]

PFAS are being defined, monitored, evaluated and regulated by the Office of Water, the Office of Air and Radiation, and elsewhere in the Agency.

And, because there is no scientific justification for EPA's "working definition" provided – as well as little transparency as to how or when it was developed, or who was involved, both inside and outside the government – it further challenges the Administration's stated goal to restore scientific integrity and credibility at the Agency.

In response to concerns about the Agency's "working definition" EPA staff have noted that OECD recognized that regulatory bodies might opt to take action on smaller subsets of PFAS, not necessarily every substance that meets the PFAS definition. That is irrelevant. The definition of PFAS and the scope of regulations taken to address PFAS pollution are two different matters. The intent to regulate subsets of PFAS does not justify continuing to rely upon a narrow and unprotective definition of PFAS. We recognize that EPA may choose to regulate subsets of the PFAS class for various situations; but it should do so while operating from a common understanding and recognition of the full class.

We are aware that industries, particularly those that manufacture, process, and use PFAS, have argued for excluding some PFAS from the definition. For example, industry interests have promoted the idea that polymers are "safe" and therefore should not be covered by EPA's definition of PFAS. This is wrong in several respects. To industry even PFOA, PFOS, and GenX are "safe." PFAS manufacturers have never acknowledged the threat that their chemicals pose—even when internal documents demonstrate that the companies have been aware of the risks for decades. In addition, industry's claims for the inherent safety of fluoropolymers are unfounded as exposures during fluoropolymer production, use, and disposal have been linked to health harms.[4] Finally, the production of polymers is a major source of PFAS pollution, especially from the monomers used to create the polymers.[5] In fact, most of the

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[4] Hays, Hannah L., and Henry Spiller. "Fluoropolymer-Associated Illness: Clinical Toxicology: Vol 52, No 8." *Clinical Toxicology* 52, no. 8 (September 9, 2014): 848–55.

Centers for Disease Control and Prevention. "Severe Acute Respiratory Illness Linked to Use of Shoe Sprays -- Colorado, November 1993." *Morbidity and Mortality Weekly Report* 42, no. 46 (November 26, 1993): 885–87.

Fluoropolymer Division. *Guide to the Safe Handling of Fluoropolymer Resins*. 5th ed. The Plastics Industry Association, 2019. [HYPERLINK "https://www.turi.org/content/download/12048/189380/file/Guide%20to%20the%20Safe%20Handling%20of%20Fluoropolymer%20Resins%20v5%2020190130-1.pdf"].

Dale, Steve. "Fatal Fumes." *Chicago Tribune*, March 25, 1995. [HYPERLINK "https://www.chicagotribune.com/news/ct-xpm-1995-03-26-9503260114-story.html"].

Daniels, Mary. "Stove Fumes Killing Caged Birds." *Chicago Tribune*, March 8, 1986. [HYPERLINK "https://www.chicagotribune.com/news/ct-xpm-1986-03-09-8601180125-story.html"].

[5] Lohmann, Rainer, Ian T. Cousins, Jamie C. DeWitt, Juliane Glüge, Gretta Goldenman, Dorte Herzke, Andrew B. Lindstrom, et al. "Are Fluoropolymers Really of Low Concern for Human and Environmental

contamination in West Virginia and North Carolina is from the DuPont/Chemours facilities' production of fluoropolymers. Thus, information about the production, use and release of polymers is necessary to fully understand the scope of the PFAS crisis and it is essential that fluoropolymers are defined as PFAS.

Others have argued for exempting certain PFAS from the definition based upon their use – in refrigeration, pharmaceuticals, or pesticides, for example. The uses of PFAS may be a relevant consideration for some potential regulatory steps, including prioritizing and focusing regulation within an essential use framework,[6] but usage is irrelevant to a science-based definition and should not be a basis or excuse for defining PFAS narrowly.

The road to addressing the PFAS crisis and protecting the public will be long and difficult. To achieve the Administration's goals, EPA must adopt a definition of PFAS that informs the agency, Congress, states, and the public about the full scope of PFAS exposure and contamination.

We would welcome the opportunity to speak with you about this critically important health, scientific and environmental justice matter. Please contact Daniel Rosenberg ([HYPERLINK "mailto:drosenberg@nrdc.org"]) for any reply or follow-up to this letter.

Sincerely,

Daniel Rosenberg, Senior Attorney, NRDC
Dr. Anna Reade, PhD, Senior Scientist, NRDC
Kyla Bennett, PhD, JD, Director, Science Policy, PEER
Geoffrey R. Gisler, Senior Attorney, SELC
Bonnie Angermeier, Legislative Associate, SELC
Jon Kalmuss-Katz, Senior Attorney, Earthjustice
Rashmi Joglekar PhD, Senior Scientist, Toxic Exposure & Health, Earthjustice

Cc: Assistant Administrators Michal Freedhoff, Radhika Fox, Chris Frey

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Health and Separate from Other PFAS?" *Environmental Science & Technology* 54, no. 20 (October 20, 2020): 12820–28. [HYPERLINK "https://doi.org/10.1021/acs.est.0c03244"].

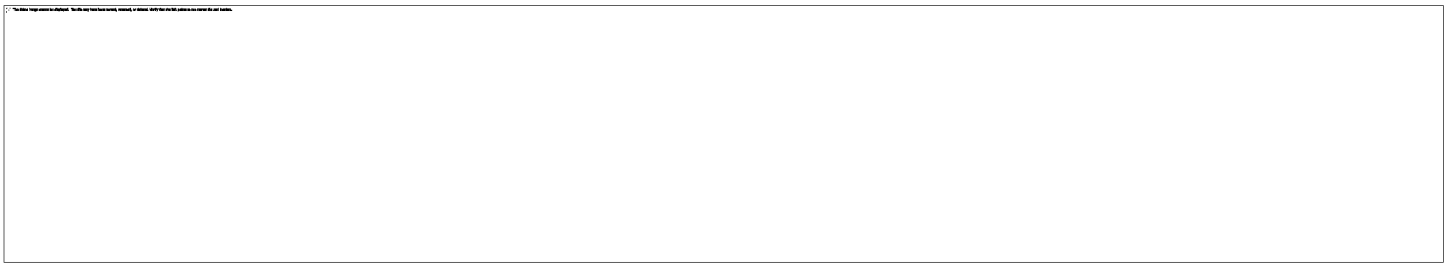
Prevedouros, Konstantinos, Ian T. Cousins, Robert C. Buck, and Stephen H. Korzeniowski. "Sources, Fate and Transport of Perfluorocarboxylates." *Environmental Science & Technology* 40, no. 1 (January 1, 2006): 32–44. [HYPERLINK "https://doi.org/10.1021/es0512475"].

[6] Cousins, Ian T., Gretta Goldenman, Dorte Herzke, Rainer Lohmann, Mark Miller, Carla A. Ng, Sharyle Patton, et al. "The Concept of Essential Use for Determining When Uses of PFASs Can Be Phased Out." *Environmental Science: Processes & Impacts* 21, no. 11 (November 13, 2019): 1803–15. [HYPERLINK "https://doi.org/10.1039/C9EM00163H"].

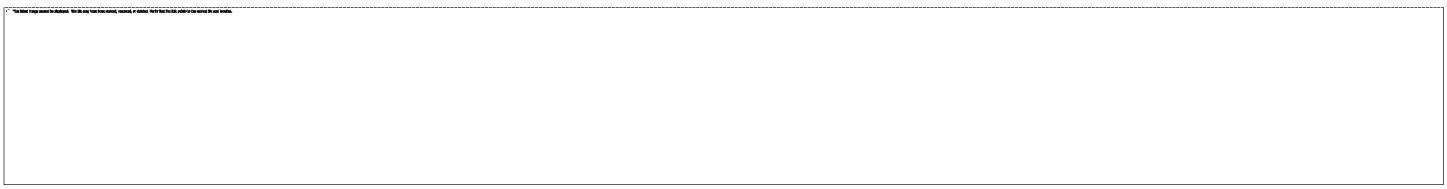
Message

From: Agri-Pulse Daily Harvest [sara@agri-pulse.com]
Sent: 1/12/2023 11:40:07 AM
To: Snyder, Rodney [Snyder.Rodney@epa.gov]
Subject: Agri-Pulse Daily Harvest 1/12/2023

Agri-Pulse Daily Harvest 1/12/2023



Agri-Pulse Daily Harvest -- 1/12/2023
Here's your daily summary of top news from www.Agri-Pulse.com and regional headlines from across the country.
Do you know someone who should also be on our list? Please ask them to click here.



FARM & RURAL POLICY

Agri-Pulse: Daybreak for January 12, 2023
Link - (Audio) Pushing ahead on enviro justice; Farm-district lawmakers win plum seats; CRP's cap 'a goal'.

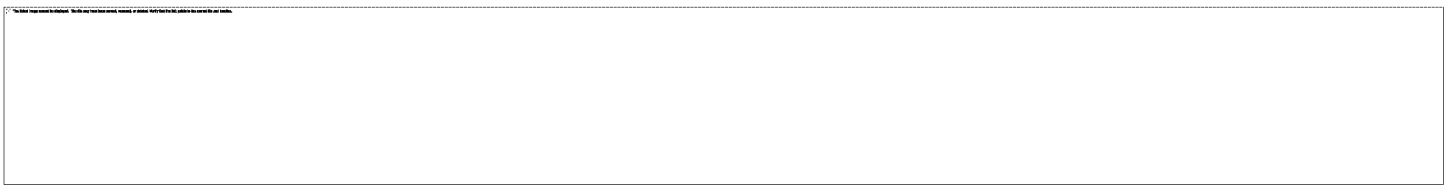
Agri-Pulse: DriveTime: January 11, 2023
Link - (Audio) DriveTime features a USDA reminder for producers, a look at policy changes for a major farm group, and the latest on weather hitting the West Coast.

Agri-Pulse: With a downsized budget, Newsom trims climate dollars, adds flood money
Link - With a projected $22.5 billion budget deficit, the administration would cut climate-smart grants 10% while adding millions more for flood protection and potential drought response.

Agri-Pulse: DPR takes 'less politicized' approach with 1,3-D, but farmers remain skeptical

Link - The Department of Pesticide Regulation has drafted a new regulation to further restrict the use of Telone. Farm groups are calling the science conservative and the justification weak, while activists say it doesn't go far enough.

The Daily Montanan: Farmers brace for rising interest rates after years of steady lows
Link - Rising interest rates have farmers and lenders putting extra thought toward operational costs.



ENERGY

Washington Examiner: Daily on Energy: Ethanol mandate battle renewed, and the latest on the gas stove uproar
Link - The ethanol lobby, merchant refiners, and their allies are back at battle this week over the future of the Renewable Fuel Standard, which is being born anew beginning this year now that Congress's biofuel blending schedule has expired.

AM 950 KOEL: Iowa AG Sues Biofuels Facility After December Explosion
Link - At the time of the explosion, the building was being operated by C6-Zero which converts roofing shingles into biodiesel and other products.

The Hill: White House touts biggest single investment in US solar energy by Korean company
Link - Korean solar power company Hanwha Q Cells will spend more than $2.5 billion to expand its Dalton, Ga., facility, the largest one-time investment in solar manufacturing in U.S. history, Biden administration officials announced Tuesday.

E&E News: Lawmakers to renew fight over offshore wind workers
Link - A bipartisan duo of House lawmakers are vowing to take an offshore energy legislative brawlinto the new year after getting snubbed in last year's defense policy bill.

Daily Yonder: Rural Missouri District Will Be One of First to Help Electric School Buses Get Rolling
Link - A federal rebate program will help El Dorado Springs R-II School District put electric buses on the road.

FOOD & NUTRITION

SG Voice: Agritecture launches platform for designing economic indoor farms

Link - Agritech advisory firm Agritecture has launched a new design platform to support the development of economically viable indoor farms.

BBC: What if all food was grown indoors?

Link - Might mangos and apples grow in high-rise city farms one day?

Inhabitat: Is cellular agriculture the future of food production?

Link - Cellular agriculture is a viable solution, but is it safe and is it a comparable replacement for products originally made from animal parts? The answer is yes to both.

Dallas Morning News: Texans face cuts in food assistance as Congress ends pandemic-era aid

Link - Amid a sharp rise in grocery costs, millions of Texans who rely on federal food assistance will see their benefits cut by March.

Grocery Dive: FDA Food Safety Guidance and the Coming Food Delivery Chaos

Link - HomeValet announces new Food-Safety Compliance and Risk Management System for Food Delivery from Store-to-Door.

Spectrum News: What hopes the food industry has for legislative session

Link - With a new legislative session underway in New York, advocates from across the food industry are pushing for specific laws to address their concerns on everything from pandemic recovery to farmworker overtime.

TRADE & INTERNATIONAL

Reuters: India and United States to increase dialogue on food, agricultural trade in 2023

Link - India and the United States will increase dialogue on food and agricultural trade issues in 2023, both governments said in a joint statement on Thursday after a trade policy forum meeting in Washington D.C.

Financial Times: Rabobank to expand Canadian agricultural lending business to farmers and ranchers

Link - Country on track to become the world's second-largest food exporter, says bank.

Reuters: 'Dangerous' Tunisian droughts threaten food security

Link - Three years of drought have dried up Tunisian reservoirs, threatening harvests that are critical to the North African country's battered economy and pushing the government to raise tap water prices for homes and businesses.

LABOR & IMMIGRATION

The Spokesman-Review: Boise-area farmworkers have 'many people living under 1 roof.' But housing aid goes unused

Link - Idaho farmers employ an average number of 53,000 workers annually, according to the University of Idaho. But Idaho has only 274 homes subsidized by the federal government for farmworkers.

The Denver Post: Colorado mushroom megafarm closes, disrupting supplies for restaurants and grocers, leaving Guatemalan workers without pay

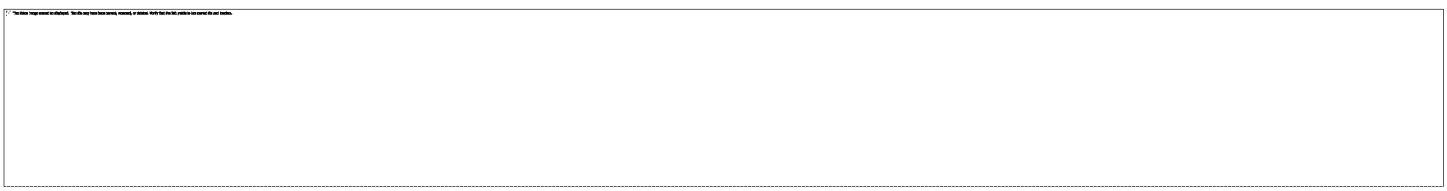
Link - A Colorado mushroom magnate's Colorado Mushroom Farm in the San Luis Valley northeast of Alamosa that for decades infused fresh fungi into the Rocky Mountain West has shut down -- mired in debts environmental disputes and a federal lawsuit — marooning 100 Guatemalan immigrant workers.

FOX 9: Trade school program being offered to help food manufacturing industry worker shortage

Link - Many metro area employers are having a hard time filling positions, and the food manufacturing industry is being hit especially hard.

FOX 61: Sen. Murphy hopes for 'common ground' on immigration reform following trip to border

Link - The immigration issue is viewed as a political weapon, but this time, they're trying to do something different.



CONSERVATION & WILDLIFE

Agri-Pulse: CDFA invests in irrigation, nutrient management projects

Link - Three projects are splitting more than $650,000 in grant funding from the California Department of Food and Agriculture to help the state's producers better understand methods to improve their nitrogen and irrigation management.

Bloomberg Tax: Supreme Court Declines to Hear Conservation Easement Dispute

Link - The Supreme Court has declined to take up a land company's challenge on an IRS notice issued over a $180 million deduction sought on donated land.

Inside Climate News: Supersonic Aviation Program Could Cause 'Climate Debacle,' Environmentalists Warn

Link - In a letter to NASA's administrator, environmental advocates call for "rigorous" independent analysis of the climate implications of putting supersonic passenger jets back in the sky.

ABC News: Commercial fishermen offered 'bounty' to clean up ocean

Link - Those who make their living out on the open ocean now have the opportunity to partake in a side hustle that simultaneously tidies up the environment.

MISCELLANEOUS

Texas Public Radio: Farmers face a higher risk of suicide, and the Texas Agriculture Department is trying to help

Link - During the last two decades, there have been higher rates of suicide in rural communities than in urban areas. And it's getting worse.

Reuters: Bayer shares gain as another activist investor piles in

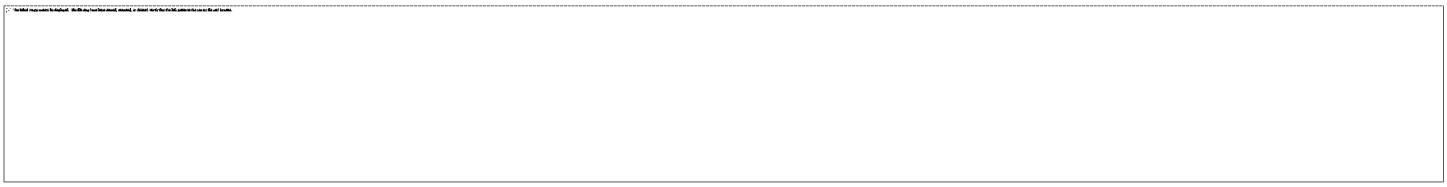
Link - Bayer is facing demands from activist investor Bluebell Capital Partners to break up, a person familiar with the matter told Reuters, pushing shares in the diversified health and agriculture group to a five-week high.

Fox 23 Maine: Maine farmers face new challenges due to high prices

Link - Some local farmers say they are facing challenges due to high prices. They say it starts with high fuel costs and trickles down from there.

KCRA: Acampo farm lost nearly 6,000 chickens from New Year's Eve storms

Link - A chicken farm in the Acampo area of San Joaquin County is facing roughly $50,000 in damages and losses from storms that have pelted the region for nearly two weeks. A total of $40,000 of that is in the loss of birds alone.



Message

From: Gonzalez, Iris (she/her/hers) [Gonzalez.Iris@epa.gov]
Sent: 3/21/2023 3:20:21 PM
To: Felix Kapoor [felix@weststreetrecovery.org]; Wise, Jahi [Wise.Jahi@epa.gov]
CC: Becky Selle [becky@weststreetrecovery.org]; Ben Hirsch [ben@weststreetrecovery.org]
Subject: RE: Comments from EPA Round table and Ask for Jahi Wise contact info

Hi all,

Thanks for your patience and for your attendance at the EPA Roundtable. By way of this email, I'm connecting you to Jahi Wise, our GGRF Director.

Best,

Delia Iris Gonzalez (she/her/ella) (please call me Iris)
Chief of Staff for the Regional Administrator, Region 6
(Arkansas, Louisiana, Oklahoma, New Mexico, Texas & 66 Tribal Nations)
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, Texas 75230
Office: (214) 665-2107
Cell: (469) 515-9144
Email: Gonzalez.Iris@epa.gov

From: Felix Kapoor <felix@weststreetrecovery.org>
Sent: Monday, March 13, 2023 11:14 AM
To: Gonzalez, Iris (she/her/hers) <Gonzalez.Iris@epa.gov>
Cc: Becky Selle <becky@weststreetrecovery.org>; Ben Hirsch <ben@weststreetrecovery.org>
Subject: Comments from EPA Round table and Ask for Jahi Wise contact info

Iris,

Thanks so much for including the NAC and West Street at the round table this past Friday. We loved all the stakeholders that made it in the room, and hope there are more conversations coming exclusively between the EPA and Houston.

Below are the comments that we submitted to Ms. Vanessa. We also wanted to know if it was possible to connect with Jahi Wise either via email, phone call or text? Thank you!

Comments:

Becky Selle, Felix Kapoor, and Billy Guevera

Organizations: West Street and Northeast Action Collective

Below is an overview of projects we're working on that reduce greenhouse gas emissions and other air pollution. We focus in northeast Houston in zip codes 77016, 77020, 77026, 77028 and 77078.

1. A pilot **Solar Equity Program** with Solar United Neighbors building off a solar coop in Houston to provide rooftop solar at no cost to the homeowner in LMI and 'hard to reach' neighborhoods. 10 members of the Northeast Action Collective are getting rooftop solar. This lowers electricity bills,

increases renewables and lowers emissions, gives ownership, and increases neighborhood perception and connection to green movements.

We are also pairing three rooftop solar arrays with **household batteries** giving these three homes energy independence. These homes are **'hub houses'** which are community member homes which are equipped with supplies to support them, neighbors, and friends in disasters such as flooding, hurricanes, power outages, chemical fires, and extreme heat and cold. Supplies include medical supplies, food and water, light, rescue equipment, and sanitary and hygienic supplies. Each hub also has several **smaller portable batteries** and solar panels that can be lent out for use in a power outage to supply essential equipment like oxygen concentrators. The household batters and portable batteries offer a safe, dependable backup power source (much safer than generators or running your stove for heat) which is essential given the instability of the Texas grid and frequency of severe weather events. In previous storms so many people have died or been severely mentally and physically harmed from not having prolonged access to power, especially during extreme cold and heat or using unsafe ways to try to survive. Respiratory problems are extremely high in frontline communities and many people rely on electronic medical equipment to live.

Solar and batteries are usually inaccessible to LMI and BIPOC people given the high cost, but that's who needs them the most, especially in socially vulnerable and frontline communities.

2. **Home repair** program focused on doing full repairs at once, using low-energy and green materials, using materials that can withstand future weather events, doing repairs to limit further damage, and doing repairs **at no cost and at any time, not just after disasters**. Home repair is needed both because of the frequency of disaster events such as flooding and freezes and because LMI BIPOC areas have been excluded from money and resources to keep homes in good standing and livable conditions. A healthy and secure home is a basic need. **Doing home repair in this style greatly reduces the waste produced from destroyed homes and reduces the need to manufacture and transport new materials which reduces emissions**. Through our home repair programs we're fully repairs 30 homes and done repairs on over 300 in the last 5 years. Our program:
   a. Prioritizes fixing homes quickly and preventing further damage such as fixing a roof or removing mold.
   b. Use greener materials and energy efficient design, such as split ac, heat pump water repair, energy efficient appliances, and full insulation - rather than cheap repair that is not energy efficient and has to be replaced later (although limitations of available funds push everyone towards cheap, temporary repair).
   c. Repairing rather than demolishing
   d. Use materials that can survive a future flood and freeze : tile floors, metal cabinets, foam insulation, PEX piping

3. Advocacy to government and industry to:
   a. **Reduce emissions and stop the expansion of toxic industry and manufacturing, especially close to our community**. Some examples include:
      i. Concrete batch plants
      ii. New truck stops and highway expansion
      iii. Landfill
      iv. Increased train traffic
      v. TQEC is too soft on regulations and has minimal oversight
      vi. There's no pathway that works to report problems and have them solved
      vii. There's still new development rapidly happening in floodplains

viii. Petrochemical plants need to be ready for disasters, we know disasters are coming and that can't excuse excess emissions.

b. **Fix the Texas power grid.**

i. Increase renewables, stabilize the grid

c. **Build flood infrastructure that protects LMI and BIPOC areas from regular rain and severe weather events. .**

i. This could prevent so much destruction, run-noff, need for new materials, spills and excess emissions and therefore greenhouse gas reductions.

ii. Infrastructure has to be planned for current conditions of the climate crisis

iii. Rain and storms are getting worse

iv. Flood infrastructure can't destroy natural storm protection and important habitats such as Ike Dike. We can't keep destroying to protect ourselves from destruction we already caused.

v.

It is a basic human right to breathe clean air and not get poisoned and ill from existing in the neighborhood you were born in, chose to live in, or were forced to live in. Communities should have the power to decide what is in their community. Noone should live next to industries like petrochemical and concrete plants, landfills, or new highways.

We hope the greenhouse gas reduction fund invests in solar, batteries, and home repair and invests in community organizations trying to advocate for health, safety, and clean air.

--
Felix K.
Director - Home Repair & Community Organizer
West Street Recovery
C:832-613-7308
www.weststreetrecovery.org

Message

From: (b)(6) EPA Administrator

Sent: 4/14/2023 5:00:37 PM
To: (b)(6) EPA Administrator
Subject: Fwd: Coverage Report: Proposed LD HD Standards

Sent from my iPhone

Begin forwarded message:

From: "Carroll, Timothy" <Carroll.Timothy@epa.gov>
Date: April 13, 2023 at 7:05:20 PM EDT
To: (b)(6) EPA Administrator
Cc: "Michalos, Maria" <Michalos.Maria@epa.gov>, "Utech, Dan" <Utech.Dan@epa.gov>
Subject: Coverage Report: Proposed LD HD Standards

Hi Administrator, congrats on a truly historic day yesterday. Sharing a round-up of key coverage across print, broadcast and digital, along with front pages across the country yesterday and today, including the New York Times and the Wall Street Journal.

Let us know of any questions, thanks!

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Gray TV (113 TV markets total) [CLIP]: http://mms.tveyes.com/PlaybackPortal.aspx?SavedEditID=1d4e31e1-2865-4b6f-9928-3cf27c636ebd
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NYT: E.P.A. Lays Out Rules to Turbocharge Sales of Electric Cars and Trucks
WaPo: Biden to remake U.S. auto industry with toughest emissions limits ever
WSJ: EPA Seeks to Boost EVs With Toughest-Ever Rules on Tailpipe Emissions
AP: Stiff EPA emission limits to boost US electric vehicle sales
Reuters: U.S. proposes 56% vehicle emissions cut by 2032, requiring big EV jump
POLITICO: The nerd's guide to Biden's newest electric vehicle push
POLITICO: Biden unveils push to send electric car sales into overdrive
AXIOS: Why the U.S. can't build EVs without China
CNN: EPA proposes new tailpipe rules that could push EVs to make up two-thirds of new car sales in US by 2032
NPR: The big reason why the U.S. is seeking the toughest-ever rules for vehicle emissions
INSIDE EPA: EPA Touts Ambition Of New Car, Truck GHG Emissions Proposals
BLOOMBERG LAW: Biden's EV Plan Needs Transmission Lines That Haven't Been Built
BLOOMBERG LAW: Biden's Toughest-Ever Auto Pollution Crackdown to Drive EV Sales
E&E NEWS: EPA releases 'strongest-ever' carbon rules for cars
E&E NEWS: EPA tailpipe proposal puts pedal to metal for electric cars
DETROIT NEWS: EPA unveiling 'strongest ever' auto emissions standards in EV push
DETROIT FREE PRESS: EPA says electric vehicle sales will be fueled by tough pollution standards
FINANCIAL TIMES: US aims to dramatically expand EV fleets with tough new emissions rule
CNBC: EPA proposes auto pollution limits to aggressively boost electric vehicle sales
THE HILL: Two-thirds of car sales could be electric by 2032 under new Biden proposal

WIRED: You May Get More EV Options Thanks to Tougher Emissions Rules
AUTOMOTIVE NEWS: EPA proposes its strictest-ever vehicle emissions limits for 2027-32
RTO INSIDER: EPA to Propose Major New Emission Standards for Cars and Trucks
E&E NEWS: Regan plugs in EPA plan to accelerate move to EVs
E&E NEWS: EPA used the climate law on cars. Power plants are next.

Front Pages

4/12/2023

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The New York Times: https://cdn.freedomforum.org/dfp/pdf13/NY_NYT.pdf
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NYT: E.P.A. Lays Out Rules to Turbocharge Sales of Electric Cars and Trucks
Coral Davenport, 4/12/2023

WASHINGTON — The Biden administration on Wednesday proposed the nation's most ambitious climate regulations to date, two plans designed to ensure two-thirds of new passenger cars and a quarter of new heavy trucks sold in the United States are all-electric by 2032.
The new rules would require nothing short of a revolution in the U.S. auto industry, a moment in some ways as significant as the June morning in 1896 when Henry Ford took his "horseless carriage" for a test run and changed American life and industry.

The government's challenge to automakers is monumental; Last year, all-electric vehicles were just 5.8 percent of new cars sold in the United States. All-electric trucks were even more rare, making up fewer than 2 percent of new heavy trucks sold.

Nearly all major automakers have already invested billions in producing electric vehicles at the same time as they continue to manufacture the conventional vehicles powered by gasoline, which deliver their profits. The proposed regulations would require them to invest more heavily and reorient their processes in ways that would essentially spell the end of the internal combustion engine.
If the two rules are enacted as proposed, they would put the world's largest economy on track to slash its planet-warming emissions at the pace that scientists say is required of all nations in order to avert the most devastating impacts of climate change.

"By proposing the most ambitious pollution standards ever for cars and trucks, we are delivering on the Biden-Harris administration's promise to protect people and the planet, securing critical reductions in dangerous air and climate pollution and ensuring significant economic benefits like lower fuel and maintenance costs for families," the Environmental Protection Agency's administrator, Michael S. Regan, said in a statement.

The E.P.A. cannot mandate that carmakers sell a certain number of electric vehicles. But under the Clean Air Act, the agency can limit the pollution generated by the total number of cars each manufacturer sells. And the agency can set that limit so tightly that the only way manufacturers can comply is to sell a certain percentage of zero emissions vehicles.

The proposed regulations will surely face legal challenges from those who see them as government overreach.

"They are using this established longstanding statute for an entirely new purpose, to force an entirely new goal — the transformation of the industry to electric vehicles," said Steven G. Bradbury, who served as the chief legal counsel for the Transportation Department during the Trump administration. "This is clearly driven by the president's directive to achieve these results. I don't think you can do this. Congress never contemplated the use of statutes in this way."

The proposed tailpipe pollution limits for cars, first reported by The New York Times on Saturday, are designed to ensure that 67 percent of sales of new light-duty passenger vehicles, from sedans to pickup trucks, will be all-electric by 2032. Additionally, 46 percent of sales of new medium-duty trucks, such as delivery vans, will be all-electric or of some other form of zero-emissions technology by the same year, according to the plan.

The E.P.A. also proposed a companion rule governing heavy-duty vehicles, designed so that half of new buses and 25 percent of new heavy trucks sold would be all-electric by 2032.
Combined, the two rules would eliminate the equivalent of carbon dioxide emissions generated over two years by all sectors of the economy in the United States, the second biggest polluting country on the planet after China.

But some autoworkers and manufacturers fear that the transition to all-electric vehicles envisioned by the Biden administration goes too far, too fast and could result in job losses and lower profits.
While major automakers have invested heavily in electrification, they are apprehensive about customer demand for the pricier all-electric models; the supply of batteries; and the speed with which a national network of charging stations can be created.

Autoworkers fear job losses, since electric vehicles require fewer than half the number of workers to assemble than cars with internal combustion engines do.

Automakers and union workers have been expressing those fears directly to the president since 2021, when Mr. Biden announced an executive order directing government policies to ensure that 50 percent of all new passenger vehicle sales be all-electric by 2030.

As word began to spread last week that his new regulations were designed to go still further, some automakers pushed back.

John Bozzella, president of the Alliance for Automotive Innovation, which represents large U.S. and foreign automakers, questioned how the E.P.A. could justify "exceeding the carefully considered and data-driven goal announced by the administration in the executive order."

"Yes, America's transition to an electric and low-carbon transportation future is well underway," Mr. Bozzella said in a statement. "E.V. and battery manufacturing is ramping up across the country because automakers have self-financed billions to expand vehicle electrification. It's also true that E.P.A.'s proposed emissions plan is aggressive by any measure."

"Remember this: A lot has to go right for this massive — and unprecedented — change in our automotive market and industrial base to succeed," Mr. Bozzella said.

Engineers and scientists at the E.P.A. have been working over the past year to determine how much electric vehicle technology is likely to advance in the next decade in order to set the strongest, achievable tailpipe emissions limits.

Tensions between the auto industry and the Biden administration played out over the past week, as the administration was forced to rearrange its rollout of the proposal, according to three people familiar with what happened.

Officials had originally planned for Mr. Regan to announce the policies in Detroit, surrounded by American-made all-electric vehicles.
But as auto executives and the United Auto Workers learned the details of the proposed regulations, some grew uneasy about publicly supporting it, according to the people familiar with their thinking. The setting was moved from Detroit to the E.P.A. headquarters in Washington, where Mr. Regan announced the proposed regulations Wednesday morning.

In an interview, Mr. Regan acknowledged that some auto executives and leaders of the United Auto Workers had expressed anxiety over the proposals — adding that they could be amended to assuage those fears.

"We're very mindful that this is a proposal, and we want to give as much flexibility possible," he said. The agency will accept public comments on the proposed rules before they are finalized next year. The rules would take effect starting with model year 2027.

Environmentalists praised Mr. Biden for delivering on a promise he made during his first days in office, when he called climate change a "moral imperative, an economic imperative" that would be central to all his decision-making.

A 2021 report by the International Energy Agency found that nations would have to stop sales of new gasoline-powered cars by 2035 to keep average global temperatures from increasing 1.5 degrees Celsius (2.7 degrees Fahrenheit) above preindustrial levels. Beyond that point, scientists say, the effects of catastrophic heat waves, flooding, drought, crop failures and species extinction would become significantly harder for humanity to handle. The planet has already warmed by an average of about 1.1 degrees Celsius.

Mr. Biden has pledged to cut the country's emissions in half by 2030 and to stop adding carbon dioxide to the atmosphere by 2050. He took a major step toward meeting that target last summer, when he signed the Inflation Reduction Act. It includes $370 billion in spending over the next decade to fight climate change, including tax incentives up to $7,500 for the purchase of American-made electric vehicles.

That law is projected to help the United States cut its emissions by 40 percent by 2030 — not quite enough to meet Mr. Biden's pledge. Experts said the new E.P.A. regulations, if enacted as proposed, are needed to reach Mr. Biden's goal.

"The EPA standards are a huge step forward in addressing the largest source of climate pollution: transportation," said Luke Tonachel, senior director of the clean vehicles and buildings program at the Natural Resources Defense Council, an environmental advocacy group. "If the strongest standards are finalized, it will but the U.S. on a path to end pollution from vehicle tailpipes and that's essential to meeting both our climate and our public health goals."

A sharp rise in electric vehicles in the United States could mean wider availability and sales of electric vehicles outside its borders, Mr. Tonachel said. "This can be a world-leading standard that puts the world on a much-needed pathway for curbing global pollution from transportation," he said.
Laurence Tubiana, the CEO of the European Climate Foundation who helped broker the 2015 Paris climate accord, welcomed the E.P.A.'s action.

"This is confirmation to the world of the seriousness of the engagement of Joe Biden on climate change and keeps the U.S. as a front-runner on climate," Ms. Tubiana said. "It's resonating very well in Europe and the world."

WaPo: Biden to remake U.S. auto industry with toughest emissions limits ever
Timothy Puko, 4/12/2023

As part of his fight against climate change, President Biden is attempting to transform the U.S. auto industry from Washington — first with carrots, now with sticks.

On Tuesday, the Environmental Protection Agency proposed two sets of new rules limiting emissions for all vehicles, ranging from passenger cars to tractor-trailers. The most aggressive of several options the EPA will consider could lead to 67 percent of all new passenger car and light-duty truck sales being electric by 2032, the agency said.

Such rules would be the most aggressive emissions restrictions on the auto industry in U.S. history, aimed at helping Biden meet his climate commitments. The EPA estimates the proposals are large enough to avert the equivalent of two full years of nationwide carbon-dioxide emissions. Under the most aggressive proposal, automakers would have to cut emissions for the passenger cars and pickups they sell in model year 2032 by more than half from 2026, the last model year governed under current rules.

"The stakes cannot be higher," EPA Administrator Michael Regan said ahead of a public announcement coming Wednesday. "We must continue to act with haste and ambition to confront the climate crisis and to leave all our children ... a healthier and safer world."

The move comes after Biden has spearheaded major investments in car and truck manufacturing. He came into office pledging to help automakers shift to sell more electric vehicles — which produce no tailpipe emissions — as a way to shrink the industry's pollution. Congress responded with tens of billions of dollars in subsidies — through grants and tax credits — to help build new factories and charging stations in the coming years, and reduce hefty upfront prices for consumers.

But some experts question if Biden's plans are too ambitious and could conflict with a quick and affordable transition to EV purchases. The cost of rare minerals needed for EV batteries is one factor. The availability of charging stations and affordable car models are others.

Automakers have been selling a lot more EVs — fully electric cars made up 7 percent of new vehicle registrations in the United States in January, compared with 4.1 percent just a year earlier. But Biden officials, supported by major environmental groups, say the industry must move faster still to help avert the worst outcomes of climate change.

Some automakers are already cheerleading the effort. But others that have been slower to move away from conventional, gasoline-burning cars and trucks are expected to be more hesitant.
"America's transition to an electric and low-carbon transportation future is well underway," John Bozzella, leader of the Alliance for Automotive Innovation, the largest auto industry trade group in Washington, said in a statement. "It's also true that EPA's proposed emissions plan is aggressive by any measure."

The Biden administration's announcement is a culmination — the first long-term requirements the president has placed on an industry central to his climate message. As a candidate, Biden promised to dramatically toughen climate rules for cars and trucks, along with power plants and oil and gas operations. He touted a future of electric Corvettes in a campaign ad, and as president had his photo taken in an electrified Hummer and Jeep.

A major goal was to frame his climate message in an economic vision. Biden promised that by cleaning up U.S. industry, he could spur its growth and ensure good-paying, often union jobs for the working class. And transportation is the country's top source of planet-warming emissions, so it was a natural move for Biden to put himself at the center of an iconic U.S. business such as automobiles, said Jessica Caldwell, lead analyst at Edmunds, a car-shopping support company.

"This seems like a perfect industry to push a lot of change," she said. "The auto industry is kind of the figurehead of it all. It's easily relatable to most people and touches the lives of most Americans."
At Biden's encouragement, Congress used its climate and infrastructure spending bills of the past two years to boost EVs with more than $31 billion in subsidies. That includes tax credits for EV manufacturers, and separate tax credits to encourage consumers to buy the vehicles. About $7.5 billion of that money is going to construction of EV charging stations.

Biden also used his first year in office to propose ratcheting up new near-term standards for cars, SUVs and pickup trucks through model year 2026. Automakers, being pushed by investors and improving technology, had already been moving toward EVs, and, as part of that 2021 announcement, they agreed with the White House to set voluntary targets so that electric vehicles, hydrogen-fuel cell and plug-in hybrid vehicles would make up 50 percent of U.S. sales by 2030.

The proposal Wednesday — for model years 2027 to 2032 — is seen as a major escalation on top of that. It could, in the months to come, codify many of those voluntary agreements into regulatory requirements and set standards even higher than what Biden had told the industry to plan for. Instead of 50 percent of the market being electric by 2030, the

new standards would effectively push U.S. automakers to have as much as 60 percent of their sales as EVs by 2030, according to the EPA.

About 50 percent of "vocational vehicles," which include buses and garbage trucks, could be electric by 2032, as would 35 percent of short-haul freight tractors and 25 percent of long-haulers, the EPA said.

If enacted, the EPA's toughest standards would initially surpass those already in place in the European Union. The E.U. law, approved in March, would result in EVs accounting for 58 percent of new vehicles sold in the bloc by 2030, according to an analysis by Transport & Environment, a Brussels-based advocacy group. By 2035, Europe's standards would be more stringent than those in the United States.

Over many administrations, the federal government has intervened to prop up the U.S. auto industry or bend it to the priorities of the day. But analysts and lobbyists say this level of intervention by Washington goes beyond what has come before, could anger industry partners and possibly backfire.
The transition automakers are perusing requires building totally new factories, assembly lines and supply chains, a years-long process. A major re-engineering of one car model usually takes anywhere from three to five years, and automakers could be overhauling dozens of them, said Larry Burns, a former GM executive and now industry technology adviser.

Such aggressive mandates could prompt automakers to make bigger bets on a narrower set of options for complying, which might limit innovation and progress because technology now is changing so rapidly, analysts said.

"I don't think we're ready for it. I think we need one more learning cycle, with the consumer, with the infrastructure, with the technology and the supply base," Burns said. "Maybe we need to go a little slower now, to go faster later with better technology."

Regan said the agency won't mandate any particular technology, and wants to find flexible ways for the industry to comply. These rules are limits on the emissions each auto company's fleet of sold vehicles will produce. So while the rule changes wouldn't order or require auto companies to sell a certain number of electric vehicles, it would set emissions limits so tightly that the only way to comply would be to sell large percentages of EVs — or some other type of zero-emissions vehicle.

One of the major dividing lines in the coming months as the EPA analyzes and crafts its final rule will be about how to factor in the influence of all of the subsidies. In 2021, the auto industry's representatives said the targets set with the White House were only possible if the government came through with help Biden had promised. Now, the Biden administration and climate advocates say the subsidies Congress approved should make it easier for the industry to comply with tougher standards.

White House national climate adviser Ali Zaidi called it an "inevitable" conclusion. "What you see over the last two years ... is that President Biden's leadership has reshaped the trend lines," he said.

Margo Oge, who directed the EPA's office of transportation and air quality from 1994 to 2012 and is now an adviser on zero-emissions cars, said it is unfair to say Washington is dictating how the industry should develop. It has provided heavy subsidies to help a transition that was already underway as automakers responded to new technologies and demand from investors, she said.

"The 50 percent the president suggested in 2021 is old news in my view," she said. "There is so much innovation across the board and so many investments made."

But there are strings attached to last year's climate law. The federal government next week begins enforcing Inflation Reduction Act rules that will require automakers to show that their batteries contain certain levels of materials originating in North America or in countries with which the United States has a free-trade agreement.
Those rules, designed to reduce reliance on materials from China, will lead to a shorter list of EVs qualifying for consumer tax credits of up to $7,500, the Biden administration has acknowledged. That has further irritated industry leaders, who say it limits how quickly they can get consumers to adopt EVs.
The vehicles are still on average more expensive than gas-powered options. And with the United States trying to pull back supply chains from China and other countries since the pandemic, cost has become a bigger concern, said Michelle Krebs, a Detroit-based analyst for Cox Automotive, an industry services and technology provider. A lack of charging infrastructure and the risks of road-testing new technology are further barriers to consumer acceptance.

"Ultimately this has to do with the consumers' willingness to buy something," Krebs said. "You can mandate something all day long, but if it's not accessible to the consumer, it won't work."
Administration officials dismissed some of these concerns, saying they have at times proved irrelevant in the past and that positive signs abound. Some recent signs of price-cutting by Tesla and Ford suggest that competition could help bring down EV prices. And charging-station construction is slowly ramping up as federal subsidies are distributed to the states.

Last week, Walmart announced it will add electric-vehicle charging to thousands of its U.S. stores by 2030, on the belief that EV adoption is reaching a tipping point.

WSJ: EPA Seeks to Boost EVs With Toughest-Ever Rules on Tailpipe Emissions
Ken Thomas, and Ryan Felton,

WASHINGTON—The Biden administration is proposing new limits on vehicle tailpipe emissions, seeking to spur U.S. auto makers to generate two-thirds of their sales through electric vehicles in a decade.
The new standards for light-duty vehicles, announced Wednesday by the Environmental Protection Agency, will apply to the 2027 to 2032 model years. They would be the nation's toughest-ever restrictions on car pollution and one of President Biden's most aggressive moves yet to combat climate change.

The proposal moves beyond Mr. Biden's ambitious target for half of all new-vehicle sales to be electric-powered by 2030. The EPA projects that the EVs could account for 67% of new- vehicle sales by the 2032 model year.

A separate proposal, covering medium-duty vehicles such as box trucks and school buses, is expected to electrify nearly half of those vehicles by the 2032 model year.

Biden administration officials said the proposal for light-duty vehicles, which includes passenger cars, sport-utility vehicles and pickup trucks, is designed to allow auto manufacturers to meet performance-based standards and comply through an array of emission-control technologies. Most are expected to reach those goals through electrification. The proposal is expected to be completed in spring 2024.

Ali Zaidi, White House national climate adviser, cited the swift pace of adoption of electric vehicles, saying that in the past two years during Mr. Biden's presidency, the number of available electric-vehicle models has doubled, as has the number of charging stations.

"We have re-established the United States as a leader in the clean transportation future," Mr. Zaidi said. "Technologies pioneered here are once again being manufactured on factory floors."
Many Republicans have questioned similar proposals in the past, pointing to sticker shock and higher costs facing consumers at dealer lots.

"The Biden administration made clear it wants to decide for Americans what kinds of cars and trucks we are allowed to buy, lease, and drive," said Sen. Shelley Moore Capito (R., W. Va.). She said the "misguided emissions standards" were made without considering supply-chain challenges, a lack of electric-vehicle charging infrastructure and the challenge of receiving permits to mine the minerals needed for EVs.

Others asserted that the measures didn't go far enough to address climate change.
"The draft rule fails to require any improvement in the tens of millions of new gas guzzlers," Dan Becker of the nonprofit Center for Biological Diversity said, adding that the plan falls short of "pollution cut necessary to protect our planet."

Auto-industry executives have warned that their shift to electrification faces a number of barriers, including an insufficient availability of public and private EV charging stations and access to raw materials used to produce batteries.

The EPA estimated that the benefits of the proposal would exceed costs by at least $1 trillion. The proposal is expected to avoid 7.3 billion tons of carbon-dioxide emissions through 2055, EPA Administrator Michael Regan said. According to the agency, that is the equivalent of the amount from the U.S. transportation sector for four years.

Major auto makers have been moving forward to shift their vehicle lineups to include more battery-powered cars, encouraged by the success of Tesla Inc. and tougher tailpipe-emissions standards around the globe.

Auto companies have already pledged targets similar to those pushed by the White House. In 2021, General Motors Co., Ford Motor Co. and Stellantis NV, which makes Jeep models, jointly voluntarily agreed to a target of 40% to 50% of their annual U.S. vehicle sales to be electric by 2030, in line with the administration's goal at the time.
The revamped emissions standards were set in motion in a 2021 executive order from Mr. Biden, which set a target for electric vehicles, hydrogen-fuel cell vehicles and plug-in hybrid vehicles to make up 50% of U.S. sales by 2030. The executive order also called for the National Highway Traffic Safety Administration to complete new corporate average fuel-economy targets for the 2027 model year and beyond no later than July 2024.

A NHTSA spokeswoman said the agency expects its CAFE rule to be proposed soon.

In the years since Mr. Biden signed the order, Congress passed laws that provided measures aimed at accelerating the pace of EV adoption, including the climate, health and tax law known as the Inflation Reduction Act and the roughly $1 trillion bipartisan infrastructure bill. Both offered funding to subsidize the purchase of battery-powered vehicles for consumers and to support the build-out of fast-charging public infrastructure that, for now, is spotty and unreliable.

The Alliance for Automotive Innovation, a lobbying group that represents GM, Ford, Toyota Motor Corp. and other major car companies, told White House officials at a February meeting that EV adoption depends on factors outside the control of auto makers, including a build-out of robust charging infrastructure and the supply of necessary minerals to make batteries.

The group sought a shorter period of model years that the coming rules cover to reduce risk and uncertainty, according to minutes of the meeting.

"Even with positive EV sales momentum and product excitement, there are challenges to the electrification transition ahead," the alliance said in a recent statement.

Another challenge could be continuity at the White House as Mr. Biden gears up for his expected 2024 re-election campaign. Just before leaving office in 2017, President Barack Obama set tailpipe-emissions standards, only to see President Donald Trump's administration roll back those rules.

That sort of back-and-forth makes planning difficult for the auto industry, which has long lead times and requires significant amounts of capital before companies sell their products to customers, said Lawrence Burns, former corporate vice president of research and development and planning at GM.

"If the requirements keep bouncing around, I don't see how anyone wins," Mr. Burns said.

The EPA's proposal follows even more aggressive moves taken by California regulators, who last year banned new gasoline-powered car sales by 2035, and Japan, which has said it plans to stop the sale of such vehicles in the middle of the next decade. The European Union is debating a measure effectively prohibiting sales of vehicles with internal-combustion engines around that time.

Meanwhile, the U.S. auto industry is contending with a change in leadership at the United Auto Workers, a union that represents more than 400,000 workers in the automotive sector and other industries. The organization's new leader, Shawn Fain, has pledged to make EV manufacturing a point of focus in contract negotiations with GM, Ford and Stellantis, which begin later this year.

Former EPA officials and analysts said the new emissions targets should become more easily attainable for the industry because of the additional government spending supported by the Inflation Reduction Act and infrastructure laws.

"Both of these massive investment laws are in place that should be expediting the ability of car and truck manufacturers to meet more-ambitious standards than what the president expected in 2021," said Margo Oge, former head of the EPA's Office of Transportation and Air Quality, on a call Tuesday with reporters.

Analysts have said that auto makers are already moving ahead toward building more EVs and potentially risk losing market share if they don't keep pace with consumer demand. EVs accounted for 8.5% of total auto-industry sales in the first quarter of this year, according to J.D. Power, an industry research firm.
The new EPA regulations would provide more certainty for companies on how to expend their resources in the coming years, said Thomas Boylan, regulatory director of the Zero Emission Transportation Association, a trade group that supports EV adoption.

"It all sort of makes sure that folks are rowing in the same direction and gives them the cover to deploy the capital," said Mr. Boylan, who previously worked for the EPA's Office of Transportation and Air Quality.

AP: Stiff EPA emission limits to boost US electric vehicle sales
Matthew Daly and Tom Krisher, 4/12/2023

WASHINGTON (AP) — The Biden administration is proposing strict new automobile pollution limits that would require up to two-thirds of new vehicles sold in the U.S. to be electric by 2032, a nearly tenfold increase over current electric vehicle sales.

The proposed regulation, announced Wednesday by the Environmental Protection Agency, would set tailpipe emissions limits for the 2027 through 2032 model years that are the strictest ever imposed — and call for far more new EV sales than the auto industry agreed to less than two years ago.

If finalized next year as expected, the plan would represent the strongest push yet toward a once almost unthinkable shift from gasoline-powered cars and trucks to battery-powered vehicles.

A look at what the EPA is proposing, how the plan serves President Joe Biden's ambitious goal to cut America's planet-warming greenhouse gas emissions in half by 2030, and whether the auto industry can meet the new EV targets:

Q. What is the EPA proposing?
A. The proposed tailpipe pollution limits don't require a specific number of electric vehicles to be sold every year but instead mandate limits on greenhouse gas emissions. Depending on how automakers comply, the EPA projects that at least 60% of new passenger vehicles sold in the U.S. would be electric by 2030 and up to 67% by 2032.
For slightly larger, medium-duty trucks, the EPA projects 46% of new vehicle sales will be EVs in 2032.
EPA Administrator Michael Regan called the proposal "the most ambitious pollution standards ever for cars and trucks," and he said it would reduce dangerous air and climate pollution and lower fuel and maintenance costs for families.
The agency will select from a range of options after a public comment period, Regan said. The rule is expected to become final next year.

Q. What is the auto industry saying about the proposed rules?
A. John Bozzella, CEO of the Alliance for Automotive Innovation, a trade group representing Ford, General Motors and other automakers, called the EPA proposal "aggressive by any measure" and wrote in a statement that it exceeds the Biden administration's 50% electric vehicle sales target for 2030 announced less than two years ago.
Reaching half was always a "stretch goal," contingent on manufacturing incentives and tax credits to make EVs more affordable, he wrote.
"The question isn't can this be done, it's how fast can it be done," Bozzella wrote. "How fast will depend almost exclusively on having the right policies and market conditions in place."
European car maker Stellantis said officials were "surprised that none of the alternatives" proposed by EPA "align with the president's previously announced target of 50% EVs by 2030."

Q. How will the proposal benefit the environment?
A. The proposed standards for light-duty cars and trucks are projected to result in a 56% reduction in projected greenhouse gas emissions compared with existing standards for model year 2026, the EPA said. The proposals would improve air quality for communities across the nation, avoiding nearly 10 billion tons of carbon dioxide emissions by 2055, more than twice the total U.S. CO2 emissions last year, the EPA said.
The plan also would save thousands of dollars over the lives of the vehicles sold and reduce U.S. reliance on approximately 20 billion barrels of oil imports, the agency said.

Q. Is the EPA proposal realistic?
A. With electric vehicles accounting for just 7.2% of U.S. vehicle sales in the first quarter of this year, the industry has a long way to go to even approach the Biden administration's targets. However, the percentage of EV sales is growing. Last year it was 5.8% of new vehicles sales.
Many auto industry analysts say it will be difficult for automakers to meet the projected sales percentage. The consulting firm LMC Automotive, for instance, said new EV sales could reach 49% in 2032 but are unlikely to go above that, citing high prices for EVs compared with gas-powered cars.
A new poll released Tuesday shows that many Americans aren't yet sold on going electric for their next cars, with high prices and too few charging stations the main deterrents. Only 19% of U.S. adults say it's "very" or "extremely" likely they will purchase an EV the next time they buy a car, while 22% say it's somewhat likely. About half, 47%, say they are unlikely to go electric, according to the poll by The Associated Press-NORC Center for Public Affairs Research and the Energy Policy Institute at the University of Chicago.
White House climate adviser Ali Zaidi said EV sales have tripled since Biden took office and the number of available EV models has doubled. Analysts have repeatedly revised their forecasts upward since Biden, a Democrat, took office, and the industry announced over $100 billion in EV investments, Zaidi told reporters Tuesday.
"The automakers have ... technology and the infrastructure and supply chain to be able to achieve this with the lead time they've got," Zaidi said.

Q. Why is the tailpipe rule so important?

A. Transportation is the largest source of carbon emissions in the U.S., accounting for about 27% of greenhouse gas emissions in the U.S. in 2020, according to the EPA. Electric power generates the second largest share of greenhouse gas emissions at 25%.
Environmental groups say stricter tailpipe pollution standards are needed to clean the air we breathe and slow the impacts of severe weather events such as hurricanes, tornados and wildfires.
"Done right, these (new rules) will put the U.S. on the path to end pollution from vehicle tailpipes — while also slashing our dependence on oil, creating good domestic jobs and saving consumers money on fuel," said Manish Bapna, president and CEO of the Natural Resources Defense Council.
Margo Oge, former head of EPA's Office of Transportation and Air Quality, called the tailpipe rules "the single most important regulatory initiative by the Biden administration to combat climate change and to really reduce the worst outcomes of climate change."

Q. What else is the Biden administration doing to promote EVs?
A. Besides stricter pollution rules, tax credits for EV manufacturing and purchases included in the sweeping Inflation Reduction Act passed last year will help reach the tougher requirements, the White House and its allies said.
At present, many new EVs manufactured in North America are eligible for a $7,500 tax credit, while used EVs can get up to $4,000. However, there are price and purchaser income limits that make some vehicles ineligible. And starting April 18, new requirements by the Treasury Department will result in fewer new electric vehicles qualifying for a full $7,500 federal tax credit.
A smaller credit may not be enough to attract new buyers for EVs that now cost an average of $58,600 according to Kelley Blue Book.

Reuters: U.S. proposes 56% vehicle emissions cut by 2032, requiring big EV jump
David Shepardson, 4/12/2023

WASHINGTON, April 12 (Reuters) - The U.S. Environmental Protection Agency (EPA) on Wednesday proposed sweeping emissions cuts for new cars and trucks through 2032, a move it says could mean two out of every three new vehicles automakers sell will be electric within a decade.

The proposal, if finalized, represents the most aggressive U.S. vehicle emissions reduction plan to date, requiring 13% annual average pollution cuts and a 56% reduction in projected fleet average emissions over 2026 requirements. The EPA is also proposing new stricter emissions standards for medium-duty and heavy-duty trucks through 2032.

The EPA projects the 2027-2032 model year rules would cut more than 9 billion tons of CO2 emissions through 2055 - equivalent to more than twice total U.S. CO2 emissions last year.

Automakers and environmentalists say the administration is moving quickly in order to finalize new rules by early 2024 to make it much harder for a future Congress or president to reverse them. Then President Donald Trump rolled back tough emissions limits through 2025 set under Barack Obama but the Biden administration reversed the rollback.

The agency estimates net benefits through 2055 from the proposal range from $850 billion to $1.6 trillion. By 2032 the proposal would cost about $1,200 per vehicle per manufacturer, but save an owner more than $9,000 on average on fuel, maintenance, and repair costs over an eight-year period.

John Bozzella, CEO of the Alliance for Automotive Innovation representing General Motors (GM.N), Volkswagen (VOWG_p.DE), Toyota (7203.T) and others, said "factors outside the vehicle, like charging infrastructure, supply chains, grid resiliency, the availability of low carbon fuels and critical minerals will determine whether EPA standards at these levels are achievable."

The proposal is more ambitious than President Joe Biden's 2021 goal, backed by automakers, seeking 50% of new vehicles by 2030 to be electric vehicles (EVs) or plug-in hybrids.

The Biden administration is not proposing banning gasoline-powered vehicles, but wants comments on whether it should extend emissions rules through 2035 and on other alternatives. Some environmental groups want the EPA to set tougher rules, especially on heavy trucks.

The United Auto Workers union, which has warned previously about job losses from the shift to EVs, said it would review EPA's proposal.

"There is no good reason why electric vehicle manufacturing can't be the gateway to the middle class that auto jobs have been for generations of union autoworkers. But the early signs of this industry are worrying," the UAW said. "Forcing workers to decide between good jobs and green jobs is a false choice."

EPA Administrator Michael Regan declined to endorse setting a date to end the sale of new gasoline-powered vehicles. He emphasized the proposal is a "performance-based standard" and not an EV mandate.

"We're not driving any particular technology out of business -- so to speak," he said.
Under the EPA proposal, automakers are forecast to produce 60% EVs by 2030 and 67% by 2032 to meet requirements - compared with just 5.8% of U.S. vehicles sold in 2022 that were EVs. The National Highway Traffic Safety Administration plans to propose parallel economy standards in the coming weeks.

California in August moved to require all new vehicles sold in the state by 2035 be electric or plug-in electric hybrids, but must still seek an EPA waiver to proceed. Regan would not to say how the EPA would react to a California request. "We'll be on the lookout for that if it were to ever come," he said.

Republican Senator Shelley Moore Capito said called the proposal "misguided" and said "the Biden administration made clear it wants to decide for Americans what kinds of cars and trucks we are allowed to buy, lease, and drive."

Dan Becker, director of the Safe Climate Transport Campaign, said the EPA proposal should have been tougher.

"Automakers talk out of both sides of their tailpipes, promising electric vehicles while delivering mostly the same old gas-guzzlers and lobbying for weak, loophole-riddled rules," Becker said.
Under the proposal, the EPA estimates 50% of new vocational vehicles like buses and garbage trucks could be EVs by 2032, along with 35% of new short-haul freight tractors and 25% of new long-haul freight tractors. Medium-duty vehicle rules are projected to cut emissions by 44% over 2026.

POLITICO: The nerd's guide to Biden's newest electric vehicle push
Alex Guillén, 4/12/2023

The Biden administration's newest push to get more Americans behind the wheel in electric vehicles rests on two granular pollution regulations that could transform the auto industry.
Here's what to know about the 1,475 pages of proposed rules that the Environmental Protection Agency unveiled Wednesday — requirements that agency chief Michael Regan said are meant to spur "innovation and creativity" from carmakers:

How big a deal is this really?
Potentially very big.

If Wednesday's proposals work out the way Biden's regulators envision, two out of every three new cars and light trucks sold in the U.S. in 2032 will be electric — more than 10 times the current national sales rate.

That figure includes a projection that 78 percent of sedans, 68 percent of pickups and 62 percent of crossovers and SUVs could be battery-powered just nine years from now.

lectric vehicle sales are rising already, of course. Some automakers, such as Ford and General Motors, have announced plans to stop making gasoline-powered cars entirely by 2035.

But without stricter regulations, the EPA says, electric vehicles would make up only 39 percent of new sales in 2032.

The agency also projects that half of new "vocational" vehicles — such as garbage trucks and school buses — will be electric that year under its proposals, as well as 25 percent of long-haul freight tractor trailers.

Aren't electric vehicles more expensive than gasoline-powered ones?

Yes. And EPA estimated that its proposal would add an incremental cost of $844 for cars and $1,385 for trucks in 2032.

But it also contends that those upfront costs will be more than offset by consumers' savings on fuel and maintenance (electric cars don't need oil changes, for example), as well as purchasing incentives. The agency says the average buyer of a car or light-duty truck will save $12,000 over the vehicle's lifetime.
That's on top of the rule's projected benefits in reduced oil imports, reductions in diseases related to air pollution and a lessening of planet-warming greenhouse gases.

How would the EPA's rule work?

The first and most sweeping rule, Reg. 2060-AV49, covers light-duty cars and trucks as well as medium-duty vehicles, a class that includes larger SUVs and passenger vans.

It seeks to prod automakers to produce more electric vehicles by slashing the amount of greenhouse gases allowed to come out of tailpipes.

For light-duty vehicles, the new target would be an average of 82 grams of carbon dioxide per mile traveled in 2032. That's down roughly half from the administration's existing target for 2026.
The target is a "fleet average" that the EPA calculates for each auto manufacturer. That means that an automaker's sales of zero-carbon electric vehicles can offset the pollution from its fossil-fuel cars and trucks, though automakers may pursue more efficiencies in gasoline-powered models as well.

The final real-world figures can also vary depending on how automakers choose to comply with the rule.
The rule also strengthens limits on vehicles' conventional air pollutants — a step that would also increase the incentives for carmakers to go electric.

For acid-rain-causing nitrogen oxides and other organic gases, the standard would be reduced to 12 milligrams per mile in 2032, down 60 percent from an Obama-era requirement. EPA also proposed a standard for "particulate matter" (i.e., soot) that's down as much as 92 percent from current standards.

In addition to the primary proposal, Alejandra Nunez, EPA's deputy assistant administrator for mobile sources, said the agency is soliciting comments on several alternative regulatory options of varying stringency for light-duty vehicles. The least stringent would achieve 64 percent electric vehicle penetration in 2032, Nunez said, while the most would reach 69 percent.

Is that all?

No! The proposal also includes several tweaks to a compliance program that EPA has been using to help automakers meet its requirements.

The agency is maintaining a system in which companies that produce less-polluting vehicles can earn "credits" that they can then sell to their more-polluting rivals. (These credits have been a revenue source for companies like Toyota and Tesla.)

On the other hand, EPA wants to phase out a bonus credits program that rewarded companies for adopting technologies such as solar roof panels and high-efficiency headlights.

EPA also wants to stop giving credits to electric vehicle manufacturers for using more efficient air conditioning.

EPA's second proposed rule, Reg. 2060-AV50, would cover heavy-duty vehicles such as tractor-trailers and vocational vehicles — the source of a quarter of the transportation sector's greenhouse gas emissions. The rule follows two prior rounds of greenhouse gas regulations for heavy-duty trucks that manufacturers largely accepted.

That proposal also creates warranty requirements for batteries on zero-emissions trucks and would require automakers to install "state of health" battery monitors accessible to customers.

The light-duty proposal will be open for 60 days of public comment and the heavy-duty proposal for 50 days of comment once published in the Federal Register in the coming weeks.

But wait — didn't Biden just make it harder to get tax breaks for electric vehicles?

Yes, less than two weeks ago: Under a proposal announced March 31, fewer of the electric cars and trucks now on the market will qualify for the $7,500-per-vehicle tax breaks intended to make EVs more affordable for consumers.

The aim, as mandated by Congress, is to ensure that vehicles receiving the credits are made in the U.S., and that their critical parts and minerals come from either the United States or its closest trading partners. Even tighter restrictions from Treasury — aimed at boxing out countries like China — are due later this year.

So which vehicles will qualify for the tax credits?

Stay tuned: By Tuesday, automakers are supposed to confirm which of their models meet the new Treasury requirements. (They'll have to swear this under penalty of perjury.)

But when POLITICO questioned the car companies last week, they said just five of the 91 electric car models now sold in the U.S. clearly qualified for the full tax break. Those all came from American automakers, with General Motors, Ford and Tesla leading the pack.

What other obstacles could complicate Biden's goals?

The U.S. still doesn't have nearly enough chargers for all the electric vehicles that the EPA wants to see on the highways. And many of the chargers that exist suffer from malfunctions, slow charging and other woes, as David Ferris recently documented for POLITICO's E&E News.

Questions linger about whether the U.S. electric grid can stand up to the load of charging so many vehicles, and whether domestic manufacturing and mining can ramp up fast enough to make sure EVs are produced domestically.

The administration's hope is that the prodding from the EPA, the availability of tax breaks and other incentives for technologies such as charging stations will speed up a transformation to electric vehicles that market forces are already pushing to bring about. That's a work in progress, of course.

What do people say about the rule?

Many environmental groups welcomed Wednesday's news. Dan Lashof, U.S. director for the World Resources Institute, said in a statement that EPA's proposals will "speed the United States' auto industry toward an all-electric future faster than any regulation has before."

But Dan Becker, director of the Center for Biological Diversity's Safe Climate Transport Campaign, argued that the proposal isn't stringent enough. He called on the EPA to write a regulation that achieves 67 percent electric vehicle sales in 2030 — two years earlier than the agency's timeline.

"Biden shouldn't let automakers' can't-do attitude sabotage his best shot at cutting carbon emissions," Becker said in a statement.

Republicans were, notably, less thrilled. Sen. John Barrasso (R-Wyo.) accused Biden of trying "to ban the cars we drive," a common refrain from GOP critics of the new rule.

"The 'electrification of everything' is not a solution," Barrasso said Wednesday. "It's a road to higher prices and fewer choices."

POLITICO: Biden unveils push to send electric car sales into overdrive
Tabta Snyder, James Bikales, and Alex Guillén, 4/12/2023

President Joe Biden's climate agenda is finally showing some teeth.
After more than a year of offering incentives for industries to invest in clean energy, the Biden administration on Wednesday announced what it called the most ambitious auto pollution rules in history, with the aim of accelerating automakers' shift to electric vehicles.

The standards could result in battery-powered cars and trucks making up two-thirds of new light-vehicle sales by 2032, the Environmental Protection Agency said, while reducing oil imports, saving motorists thousands of dollars in fuel and maintenance costs, lessening air pollution deaths, and cutting the greenhouse gas pollution that's warming the planet.

This is, as President Joe Biden said in a different context, a big f--ing deal. His administration wants to change the way Americans have traveled the roads for more than a century. But by pushing the industry to make the transition faster, Biden could risk a backlash from unwilling consumers, complicate questions about China's dominance of electric vehicle supplies, and escalate his administration's legal fight with the oil industry and GOP governors who oppose his efforts to phase out internal combustion engines.

On the plus side for Biden, though, electric vehicle sales are already rising. And carmakers, who are investing big money in going electric, have defended the EPA's previous pollution rules in federal court.
"Whether you measure today's announcement by the dollars saved or the gallons reduced or the pollution that will no longer be pumped into the air, this is a win for the American people," White House National Climate Advisor Ali Zaidi told reporters on Tuesday.

EPA Administrator Michael Regan said during an appearance Wednesday that he's confident automakers can meet the steep new mandates, despite public misgivings from industry groups.
"When I look at the projections that many in the automobile industry have made, this is the future," he said. "The consumer demand is there. The markets are enabling it. The technologies are enabling it."

Still, even some supporters of the president's climate policies say they worry about a host of complications, including consumers' ability to afford the $50,000-and-up price of many electric vehicles now on the market. Biden's signature climate law offers $7,500 tax breaks to lessen the sticker shock, but the Treasury Department announced rules just two weeks ago that will make those credits more difficult to get.

Under the EPA proposal unveiled Wednesday, carbon dioxide emissions for new cars and light trucks would need to fall by 49 percent on average from 2027 to 2032. The agency is also proposing tightened standards for medium- and heavy-duty vehicles, with the latter including dump trucks, school buses and tractor-trailers.

"Everybody cares about global warming," said Rep. Debbie Dingell, a Democrat from the auto industry's home base of Michigan. But she added, "I'm hearing from too many people in this country — I mean, strong Democrats — that they can't afford an electric vehicle."

Other obstacles to getting more motorists to go electric include the patchy availability of charging stations and questions about whether the new breed of cars and trucks will be made in the U.S., with American-sourced parts and minerals, or would further dependence on China.

John Bozzella, president and CEO of the Alliance for Automotive Innovation, which represents leading U.S. automakers, said the industry's ability to meet the targets depends on factors outside its control.
"A lot has to go right for this massive — and unprecedented — change in our automotive market and industrial base to succeed," he wrote in a blog post Wednesday.

Some Republicans were caustic, including Florida Rep. Kat Cammack, who called the proposal "another clueless harebrained plan that actually has no basis in reality."

"That seems to be the joke of the Biden administration — one of many, in fact — where they say, 'Oh, you are concerned about rising gas prices, oh, you peasant, go out and buy an electric vehicle that costs $80,000,'" Cammack told Fox Business on Monday. "It's absolutely absurd how out of touch this administration truly is."

Matthew Davis, senior director of government relations with the League of Conservation Voters, said the administration should use the EPA rule to "drive innovation" — building on the electric vehicle incentives in Biden's infrastructure and climate laws, which have already inspired investments in manufacturing and charging projects.

"If these rules aren't strong enough, they won't send a strong additional message to the federal investments message that already has been sent," Davis said. And that could frustrate the Biden administration's hopes of having electric vehicles account for half of all new car and truck sales by 2030.
Electric vehicles made up about 5.6 percent of cars and trucks sold in 2022, up from 1.8 percent just two years earlier — but still not nearly enough to achieve the large emissions reductions that scientists say are needed to avoid the worst impacts of climate change, according to data from S&P Global Mobility cited by POLITICO's E&E News.

A majority of Americans are at least open to buying an electric vehicle, according to a Gallup poll released Wednesday. Twelve percent of respondents said they are "seriously considering" buying an electric vehicle and another 43 percent said they might consider it in the future, versus 41 percent who "unequivocally say they would not." Four percent of respondents already owned one.

Yet the interest is highly partisan: 76 percent of Democrats were either seriously or somewhat considering purchasing an electric vehicle, while 71 percent of Republicans said they would not buy one, the polling firm found.

EPA's new rules will push automakers toward electric vehicles regardless, said Mike Ramsey, an automotive analyst at the consulting firm Gartner. "These rules would really just take away any sort of safety net or ability to turn back," he told E&E News.

Already the auto industry, which has eagerly welcomed a variety of tax credits for manufacturing and selling electric vehicles, is deflecting blame in case it can't meet the standards.

The move toward electric vehicles "requires a massive, 100-year change to the U.S. industrial base and the way Americans drive," the Alliance for Automotive Innovation wrote in a memo issued last week. "A clear-eyed assessment of market readiness is required. The answer on rule feasibility is: It depends."

"It's a difficult dance," said Stephanie Brinley, an automotive analyst for the auto intelligence service at S&P Global Mobility. "In order to have a more fuel efficient vehicle, it will be more expensive. It will be more expensive to produce; it will be more expensive to buy. It just goes with the territory. And that's at the core of the conundrum."

Still, she said, Europe and China have long had stricter regulations than the United States, so manufacturers already have some practice conforming to higher fuel economy standards.
The Republican attack line has already become clear, with some accusing the Biden administration of attempts to social-engineer people out of their pickup trucks and into "some puny electric car," as Rep. Eric Burlison (R-Mo.) tweeted on Monday.

Rep. Dan Newhouse (R-Wash.) called the EPA proposal "yet another draconian rule from the Biden" administration and invoked this year's partisan dust-up about gas stoves, which one federal regulator had suggested banning. (Biden has opposed a stove ban.)

Sen. Markwayne Mullin (R-Okla.) last month chastised the EPA for its efforts to boost electric vehicles, arguing that they strain the grid and are impractical for people like his wife, who he said drives 5,000 miles per month taking their children to school from rural areas.

"I don't want 'California' rules," Mullin said, referring to that state's electric vehicle mandates. "I don't want them to play a role in Oklahoma. I want affordable and reliable energy."

The gas stoves scuffle could seem tame compared with an all-out feud over what's in tens of millions of Americans' driveways. The Obama administration took a GOP strafing over policies aimed at getting people out of their cars in favor of bikes, walking and transit — outrage that kept the conservative blogosphere buzzing for months. (Writing for Newsweek at the time, George Will dubbed then-Transportation Secretary Ray LaHood the "Secretary of Behavior Modification.")

In contrast, Biden has proclaimed himself a "car guy." And his administration and its allies are pitching the new EPA pollution standards as an economic opportunity for the U.S. to dominate the transportation technology of the future.

A recent report from the Environmental Defense Fund and the engineering and design firm WSP USA found that automakers had announced $120 billion in electric vehicle investments since 2015, with the bulk of that money coming since the passage of the bipartisan infrastructure law in 2021 and the Inflation Reduction Act last year.

Much of that spending, and the jobs that come with it, is happening in red or purple states. Georgia leads the pack on announced new EV jobs, followed by Tennessee, Michigan, Nevada and South Carolina.

The administration said the new standards would save the economy $850 billion to $1.6 trillion between 2027 and 2055, avoid about 20 billion barrels in oil imports, and save the average buyer of a car or light-duty truck $12,000 over the vehicle's lifetime.

AXIOS: Why the U.S. can't build EVs without China
Joann Muller, Jael Holzman, 4/12/2023

The Biden administration's effort to spur domestic battery manufacturing is running into a problem: Some critical raw materials are only found abroad, and China controls much of the supply.

Why it matters: The provenance of raw materials used in electric vehicle (EV) production — including lithium, nickel, cobalt and graphite — is about to have a huge impact on tax credits designed to put such cars within reach of average Americans.

Details: Consumers can earn up to $7,500 in federal tax credits on EV purchases — but only when buying cars that meet certain sourcing requirements.

1. New rules issued under last year's Inflation Reduction Act exclude EVs with components from "foreign entities of concern" — a category that remains hazy but will likely include China, given that federal officials recently tagged it as such in the semiconductor world.
2. The idea is to reduce U.S. reliance on China, a lofty goal given that country's control of vital battery resources and technology.

Reality check: Many of the minerals essential to EV battery chemistries are primarily mined and processed in China, or by companies within China's sphere of influence.

1. China is poised to control a third of the world's lithium supply by 2025, for example.
2. It's also home to one of the world's largest natural battery graphite resources, and is the only country currently mining such material in large quantities.
3. While lithium and some other battery minerals exist in the U.S., developing mines is an expensive, time-consuming process.

The intrigue: Navigating such geopolitics while trying to master rapidly evolving technology can be dicey for automakers, who are lining up for lucrative tax credits of their own to produce batteries in the U.S.

Zoom in: Ford Motor, for example, expects more than $7 billion in battery manufacturing tax credits between now and 2026, and says the annual credits will leap much higher starting in 2027.

1. Yet the carmaker has been criticized for collaborating with a Chinese supplier on a new $3.5 billion battery plant in Michigan, and for investing alongside a Chinese mining company in an Indonesian nickel plant.
2. Sen. Marco Rubio (R-Fla.) is sponsoring a bill aimed at Ford that would outlaw tax credits for joint ventures with Chinese companies, or for EVs built using battery technology licensed from China.

What they're saying: "Hardworking Americans should not be forced to subsidize Chinese companies that make batteries for electric vehicles that cost more than most people make in a year," Rubio said in a statement.

The other side: Ford says it's complying with both the letter and the spirit of U.S. law while creating thousands of jobs.

1. "Like every other major global automaker, our supply chain draws from the best technologies, processes and minerals from around the world, including from Chinese companies," a company spokesperson told Axios.
2. The Michigan factory will be a wholly owned subsidiary of Ford, not a joint venture, the spokesperson added.

1. Ford will pay a licensing fee to China's CATL, the world's largest battery company, and hire the Chinese company to help get the Michigan plant up and running — but CATL won't receive taxpayer money.
2. Amid the backlash, Ford issued a press release this week proclaiming itself "the most American of all car companies" because it produces the most vehicles and employs the most hourly workers in the U.S.

The big picture: Auto industry executives say there's danger in trying to unwind global supply chains to protect regional economies.
1. "There are a lot of traps," says Carlos Tavares, CEO of Stellantis, the parent of Jeep, Chrysler and Peugeot. "The world is fragmenting, and global trade is going backwards," he says, creating regional economic bubbles.
2. "You might not always have the resources inside the bubble to support the activities inside the bubble," he adds — which could mean higher prices for energy, raw materials and labor.
3. Plus, battery technology is still evolving — sodium-based designs are one intriguing development — meaning the U.S. may be at risk of building mines and factories to produce batteries that wind up being obsolete in a decade. (Cobalt and nickel, for instance, are prevalent in today's batteries but could soon be outmoded.)

The bottom line: The White House has notched several big battery wins, but it'll take more than a few tax breaks to reverse decades of globalization.

CNN: EPA proposes new tailpipe rules that could push EVs to make up two-thirds of new car sales in US by 2032
Ella Nilsen, 4/12/2023

CNN —
The Environmental Protection Agency on Wednesday proposed ambitious new car pollution rules that could require electric vehicles to account for up to two-thirds of new cars sold in the US by 2032, in what would be one of the Biden administration's most aggressive climate-change policies yet.

The tailpipe standards would also have the effect of cutting planet-warming pollution from cars in half. Transportation accounts for nearly 30% of all greenhouse gas emissions in the US, according to the EPA.

EPA Administrator Michael Regan called the regulations "the strongest-ever federal pollution standards for cars and trucks."

Regan touted the proposed rules on "CNN News Central" on Wednesday, claiming they would bring down costs for consumers and slash planet-warming pollution.

"This is a future for everyone, and we're starting to see all of the auto industry move in this direction," Regan told CNN's Sara Sidner, saying strong auto emissions rules have been part of President Joe Biden's "vision from day one."

EPA officials said that they are considering several different emissions proposals, which could result in anywhere from a 64% to 69% electric vehicle adoption rate by early next decade. If approved, the emissions standards would start model year 2027 vehicles.

The agency anticipates the new rules would mean EVs could also make up nearly half of all new medium-duty vehicles, like delivery trucks, by model year 2032. Officials are also proposing stronger standards for heavy-duty vehicles, including dump trucks, public utility trucks, and transit and school buses.

One expert told CNN the Biden administration's proposal is a pivotal moment for the US auto industry and consumers.

"It's a pretty big deal," said Thomas Boylan, a former Environmental Protection Agency official and the regulatory director for the EV trade group Zero Emission Transportation Association. "This is really going to set the tone for the rest of the decade and into the 2030s in terms of what this administration is looking for the auto industry to do when it comes to decarbonizing and ultimately electrifying."

Regan and White House National Climate Adviser Ali Zaidi hailed the proposed regulations as a major climate win that would also save American consumers money in the coming years.
Zaidi said that in the Biden administration's first few years, the number of EVs on US roads had already tripled, while the number of public charging stations had doubled. And Zaidi vowed more to come, with funding from Biden's infrastructure law for a network of EV charging stations combined with consumer tax credits.
"Whether you measure today's announcements by the dollars saved, the gallons reduced, or the pollution that will no longer be pumped into the air, this is a win for the American people," Zaidi said.

Yet even as the administration is writing aggressive regulations to push the market toward EVs, a Gallup poll released Wednesday suggests that Americans are not yet sold on the idea. Gallup polled more than 1,000 adults in the US last month and found that 41% said they would not buy an electric vehicle.

Not only are EVs still more expensive than gas-powered cars, but consumers also haven't yet grasped the climate benefits of transitioning to zero-emissions vehicles, the poll found. Six in 10 respondents said they believe EVs help the environment "only a little" or "not at all," Gallup reported.

Transportation is the biggest source of planet-warming pollution in the US, and light duty vehicles – the average cars Americans drive – account for 58% of those emissions. The UN's Intergovernmental Panel on Climate Change reported last year that aggressive, pollution-slashing changes in the global transportation sector – including the transition to EVs – could reduce the sector's emissions by more than 80%.

Speaking on CNN, Regan also emphasized that switching to an EV would save consumers money in the long run.

"Folks who purchase electric vehicles will see a cost savings over the lifespan of the vehicle, because they're not having to buy gas, having to pay for maintenance," Regan said. "So this is a huge opportunity for everyone in this country."

Other countries, including the EU and China, are moving faster toward adopting EVs. In the US, California has already proposed that zero-emissions vehicles make up 70% of new car sales by 2030, and 17 other states plan to follow California's lead.
That means much of the US car industry will already be transitioning ahead of the proposed federal rules.
"I believe it's pretty doable," Margo Oge, chair of the International Council on Clean Transportation and a former Obama EPA official, said of the aggressive transition to EVs. "The industry is there. Europe is ahead of the US, China is ahead of Europe – and these companies are global companies."

New federal tax credits are coming next week that aim to help American consumers save up to $7,500 on an EV. But they have incredibly complex requirements for the auto industry – including that the cars' batteries and components come from the US or countries it has a free-trade agreement with.

Still, Boylan said the regulations are designed to gradually work over the next decade, by which time consumers should have far more electric vehicle options to choose from.

"You've got the tax credits as the carrot," Boylan said. The proposed tailpipe regulation "provides the stick to backstop these incentives and push the industry forward."

Regan told CNN the rules would be phased in gradually, giving auto makers and consumers years before they fully go into effect. During that time, the administration is focused on installing more EV charging stations and expanding access to $7,500 federal EV tax credits.

"What we're looking at is a ramp-up period," Regan said on CNN. "We're going to see a massive buildup over the next couple years, and we're starting to see those electric vehicle sales numbers grow already."
The EPA will take public comment on the proposal before finalizing the rules in the coming months.

NPR: The big reason why the U.S. is seeking the toughest-ever rules for vehicle emissions
Camila Domonoske, 4/12/2023

The Environmental Protection Agency is proposing its most ambitious new regulations yet for cutting pollution from vehicles.

The overarching goal is not just cleaner cars, but the transformation of the auto industry: The EPA would essentially impose regulatory penalties on companies that do not move quickly enough toward electric cars.

The new standards are so strict that, according to the EPA's estimates, up to 67% of new vehicles sold in 2032 may have to be electric in order for carmakers to be in compliance.
EPA Administrator Michael Regan says the proposed standards would eliminate 7.3 billion tons of CO2, equivalent to four years worth of the entire U.S. transportation sector, and save lives through reduced air pollution.

He promised the EPA will work closely with labor, the auto industry and green groups to "usher in a new generation" of clean cars.

"We're going to envision and innovate and achieve this future together," he said during a call with reporters. "It is well within our grasp. Make no mistake about it."

Margo Oge, a former EPA official and the chair of the board of the International Council on Clean Transportation, called the regulations "the single most important regulatory initiative by the Biden administration ... to really reduce the worst impacts of climate change."

"The administration is going to make history — if indeed, at the end of the day, they finalize these ambitious standards," she said in a press conference arranged by the Environmental Defense Fund, an advocacy group.
Before they are finalized, the proposed standards (which include several alternative options) will be open for public comment. They may be revised before they enter into effect. EPA has also proposed new standards for medium-duty and heavy-duty trucks.
Here's what to know about the proposal.

What do the standards require?
These proposed standards cover the pollution from vehicle tailpipes — including air pollution that is directly damaging to human health, as well as the greenhouse gases that are fueling catastrophic climate change.

They are separate from the fuel economy standards set by the federal government; new proposals for those rules are expected soon. These are also separate from — and designed differently than — the zero-emission vehicle mandates adopted in California and some other states.

The EPA is not proposing to directly require that 67% of vehicles be zero-emission by 2032.

Instead, it sets a standard for emissions, on average, based on the size and type of vehicle being built. The agency says those new rules are so stringent that it believes companies will need to produce 67% zero-emission vehicles to meet them.

But technically, if automakers came up with another way to meet the rules, they could; the policy is "technology-neutral."

The new proposed standards would require just 82 grams/mile, on average across a company's production, by model year 2032. That's a 56% reduction from the 2026 target.
Exactly one automaker could meet that standard today: Tesla.

Isn't the auto industry already going electric?
Yes, automakers are already executing a remarkable shift toward electric vehicles, spending hundreds of billions of dollars on new battery plants and production lines.

And the plans companies had already announced were fairly eye-popping.

Ford — which sold 61,575 EVs last year — aims to build 600,000 per year by the end of 2023.
General Motors plans to build a million per year by 2025, an aggressive move from the 39,096 EVs it sold last year.

These are all numbers for the North American market, not counting the huge Chinese EV market.
However, companies have different timelines for when they planned to go electric, and many were not publicly planning on being anywhere close to two-thirds electric in the U.S. by 2032.

A number of automakers had balked at President Biden's previously announced target of having 50% of new cars sold by 2030 be made up of EVs. The EPA proposal is more ambitious — and, unlike that target, it would come with regulatory teeth if it was adopted.

In addition to new rules for cars, trucks and SUVs, the EPA is also proposing standards for medium-duty vehicles, like delivery trucks, and heavy-duty vehicles, like tractor-trailers. If finalized, the EPA predicts these would lead to 50% of buses and 25% of long-haul tractor trailers being electric by 2032.

How will this affect car shoppers?
Some analysts and industry voices are crying foul, saying the EPA is moving unreasonably quickly and would hurt consumers.

The EPA estimates that complying with the proposed rules would add $633 to the cost of making a vehicle in 2027 and about $1,200 per vehicle in 2032.
But drivers would overall save money because EVs are cheaper to operate, the EPA's analysis found. Car buyers may also benefit from tax credits of up to $7,500.

Overall, the EPA calculates the rules would save the U.S. between $850 billion and $1.6 trillion, including reduced climate change impacts and improvements to health.

Are these rules feasible to implement?
The EPA maintains the rules can be feasibly met, thanks to improving technology and to significant government support for electric vehicles — including loans, grants and tax credits for companies building batteries and electric vehicles, as well as tax credits for consumers buying them.

And it's certainly true the Biden administration offered many carrots to persuade the auto industry to go electric, in addition to this regulatory stick.

But the auto industry emphasizes that the shift toward electric vehicles requires multiple, simultaneous transformations, including some outside their control.

It's not currently clear if the world can mine enough minerals or build enough batteries quickly enough to satisfy automakers' existing production plans, let alone accelerated ones.

Charging infrastructure needs to be built out, as well as the power generation to supply those chargers. Drivers — huge swathes of them, not just a small percentage of enthusiasts or the particularly eco-conscious — would need to embrace a shift away from gas stations and towards chargers.

What's next?

The proposed regulations will be open for comment, and car makers will likely be very vocal about expressing what they consider they can actually achieve over the next decade.

The proposed rules are also very likely to face a backlash. Republican states, led by Texas, have already sued the EPA over the current version of these vehicle standards, arguing that the body overstepped its authority in crafting those rules with an eye to EV adoption.

And those standards are significantly less ambitious than the rules proposed today.

Notably, the Alliance for Automotive Innovation, the trade group for major automakers, has defended the EPA's right to set those standards, saying nobody questions the future is electric.

"However this litigation concludes," the group said in a legal filing, "widespread vehicle electrification is inevitable."

INSIDE EPA: EPA Touts Ambition Of New Car, Truck GHG Emissions Proposals
4/12/2023

EPA has unveiled two long-anticipated proposals to curb emissions from passenger vehicles and heavy trucks, touting the overall climate and other benefits of the actions as well as projections that the plan for cars and light trucks will help spur vehicle electrification rates well above prior Biden administration goals over the next 10 years.

The agency projects that the two proposals combined will curb carbon dioxide emissions by almost 10 billion tons by 2055, with roughly three fourths of that, or 7.3 billion tons, attributable to the light-duty plan.

That is equivalent to more than twice the country's CO2 emissions in 2022, according to a White House fact sheet. EPA Administrator Michael Regan during an April 11 press briefing described the two proposals as the "strongest ever federal pollution standards for cars and trucks," which will "accelerate the ongoing transition to a clean vehicles future, tackle the climate crisis and improve our air quality for communities across the country."

The proposed rule covering passenger cars, light trucks and some medium-duty vehicles, would set new multi-pollutant standards for model years 2027 to 2032.

Agency officials said during the press call that the light-duty proposal's performance standard would include an 82 grams of CO2 per mile limit by 2032.

The heavy-duty proposal would impose more-stringent "phase 3" greenhouse gas emissions standards on trucks, such as delivery vehicles, school buses, dump trucks and tractor trailers. It starts with revisions to certain MY27 standards, while also issuing new standards for MY28-32.

EPA and other administration officials are emphasizing both proposals' technology-neutral performance standards that avoid explicit electric vehicle (EV) mandates. This approach seeks to defend against possible legal challenges from critics already charging that EPA's current auto GHG standards, which offer some recognition to EVs, are unlawful.

Regan on the press call, for example, described the light-duty plan as a "proven regulatory design" that allows manufacturers to comply "however works best for their vehicle fleets."

The agency is projecting that its light-duty plan will have net benefits of between $850 billion to $1.6 trillion, as a result of curbing both CO2 and other pollutants such as particulate matter, while its heavy-truck plan would yield benefits of $180 billion to $320 billion.

The light-duty package's MY32 requirements are projected to result in a 56 percent cut of projected fleet GHG emissions relative to MY26 standards, while the medium-duty portion of that proposed rule is projected to reduce GHGs by 44 percent in MY32 compared to MY26, according to an EPA press release.
The light-duty rule includes a main proposal and three alternative options, including a more-stringent option, one less-stringent option, and another option that in contrast to the main proposal would start more slowly and backload requirements to later years, EPA officials indicated.

But all of the options assume new EV sales of well over 60 percent by 2032 -- and one as high as 69 percent. EPA notes that EV penetration rates are somewhat lower in 2030, though all of the options would result in deployment above the Biden administration's 2021 goal that 50 percent of new passenger vehicle sales would be battery electric, plug-in hybrid or fuel cell vehicles by 2030.

Officials also acknowledged during the call that the rule would include flexibilities but did not provide details.

Heavy-Duty Plan
With respect to its heavy-duty proposal, EPA estimates that by 2032, it could lead to 50 percent electrification of new vocational vehicles, such as buses and garbage trucks, 35 percent of new short-haul freight tractors, and 25 percent of new long-haul freight tractors, according to the fact sheet.

The broader context for the two agency proposals are global market trends and federal supports -- for light- and heavy-duty EVs and related charging infrastructure -- enacted in the bipartisan infrastructure law and the Inflation Reduction Act (IRA).

An agency official said EPA did not conduct a "formal analysis" of the difference between what it is proposing in the two rules and what the agency would have proposed without the laws, but that the preamble and regulatory impact analysis for the plan will discuss how the agency accounted for the two laws, enabling more ambition in the agency's proposals.

The release of the proposals comes as former EPA transportation officials during an April 11 briefing hosted by Environmental Defense Fund (EDF) likewise touting the agency effort as historic, while making clear that its benefits do not rest on the agency's standards alone.

"EPA is not doing this in a vacuum," former EPA official Chet France, who is now a consultant to EDF, told reporters. "It is in the context of where the industry is headed already."

And former EPA transportation air quality chief Margo Oge said the rules could be "the single most important regulation or initiative" by the Biden administration to combat climate change.

Speaking before the proposals were released, Oge that she would be disappointed if the overall electrification rates assumed in the heavy-truck plan did not exceed a 30 percent by 2030 goal articulated by the Department of Energy, given analysis showing higher rates are possible.

White House climate adviser Ali Zaidi during the April 11 press call touted the proposals as part of a broader shift underway toward boosting U.S. capacity to produce clean vehicles in the wake of IRA and the bipartisan infrastructure law, citing a statistic that "over $120 billion of private capital [is now] coming off of the sidelines and into our capacity to create American-made vehicles and battery supply chains."

Pressed on appraisals by some analysts that EVs are more likely to comprise roughly half of overall vehicle sales a decade from now, rather than the administration's over 60 percent estimate, Zaidi argued that skepticism of low-end projections is reasonable.

"Time and time again folks have bet against the ingenuity of American workers and American industry," he said, referencing projections of EV deployment in recent years he said have been "revised upward by factors of two or three or four." -- *Doug Obey* (dobey@iwpnews.com)

BLOOMBERG LAW: Biden's EV Plan Needs Transmission Lines That Haven't Been Built
Will Wade, 4/12/2023

President Joe Biden unveiled an ambitious plan to boost US sales of electric vehicles in the bid to fight climate change. But the infrastructure needed to charge all those cars doesn't yet exist and would require a massive buildout of the nation's transmission lines.

The Environmental Protection Agency announced emission standards Wednesday that would compel automakers to ensure two out of every three cars and light trucks sold in 2032 run on electricity. That gives utilities nine years to develop transmission infrastructure across the US, a blistering pace for projects that can take decades to permit and build.

Read More: Biden's Toughest-Ever Auto Pollution Crackdown to Drive EV Sales
Utilities are pushing to build more power plants as the US economy becomes more electrified, but the lack of long-distance lines to carry that power is emerging as a key bottleneck. Transmission lines can stretch for hundreds of miles and typically require approvals from states, cities and private landowners. It's already a problem, and adding millions of electric vehicles would further tax the grid, said Nikki Hsu, a utility analyst for Bloomberg Intelligence.

"There's an infrastructure challenge," said Hsu. "We need a lot of transmission to handle all the goals we need to accomplish."

BLOOMBERG LAW: Biden's Toughest-Ever Auto Pollution Crackdown to Drive EV Sales
Jennifer Dlouhy, 4/12/2023

The Biden administration is proposing to crack down on vehicle pollution with tailpipe emission limits so tough they will compel automakers to ensure two out of every three cars and light trucks sold in 2032 are electric models.

The standards being outlined by the Environmental Protection Agency on Wednesday morning are on track to be among the strongest in the world, propelling EV sales well beyond even the rosiest third-party forecasts. White House National

Climate Advisor Ali Zaidi said the proposed standards are bolstered by a surge in federal government spending on charging stations and EV tax incentives as well as automakers' plans to sell more of the zero-emission models.

Read More: White House Says EV-Boosting Emission Rule to Save $1.6 Trillion
Forecasts simply haven't kept up with the massive investments unleashed by the Inflation Reduction Act and other federal laws, which are rapidly changing the landscape of what's possible, Zaidi said. "Folks have bet against the ingenuity of American workers and American industry to continue to deliver products that will help us lead the world in the clean energy economy."

Still, there are questions about the ability of auto manufacturers to fulfill the fleet-wide limits on carbon dioxide and smog-forming pollution. The Alliance for Automotive Innovation warned that factors outside the industry's direct control — including the buildout of US power grids, charging stations and battery manufacturing — will play an outsize role in dictating the pace of EV penetration.

"EPA's proposed emissions plan is aggressive by any measure," said John Bozzella, head of the alliance. "A lot has to go right for this massive — and unprecedented — change in our automotive market and industrial base to succeed."

The projection for 67% EV sales in 2032 exceeds forecasts by many independent analysts. BloombergNEF, for instance, has predicted US EV penetration of 52% by the end of the decade. It also eclipses President Joe Biden's earlier ambition for half of all car sales to be electric models by 2030.

Under the proposal, carbon dioxide emissions from car and light truck fleets would be capped at 82 grams per mile in model year 2032, representing a 56% reduction from model year 2026 standards.
Some 7.3 billion tons of CO2 emissions would be avoided through the year 2055, which the EPA said was equivalent to eliminating all greenhouse gas releases from the entire US transportation sector for four years.

The EPA forecast sees benefits of as much as $1.6 trillion through 2055, tied to a reduction in premature deaths, cardiovascular illnesses, aggravated asthma, heart attacks and decreased lung function exacerbated by pollution that would be stifled by the requirements.
The plan drew criticism from some oil industry allies and Republicans on Capitol Hill, who decried the measure as a defacto mandate for EVs that undercuts consumer choice.

"Today, the Biden administration made clear it wants to decide for Americans what kinds of cars and trucks we are allowed to buy, lease and drive," said Senator Shelley Moore Capito, a Republican from West Virginia. She accused the administration of advancing "misguided emissions standards" without considering ongoing supply-chain challenges, the dearth of charging infrastructure or decade-long permitting times for mines that can deliver essential minerals used in EV batteries.

While electric-vehicle prices are dropping, the cars still come with a premium at the time of purchase. Key to hitting the targets will be "if automakers are bought in," and when "EVs reach up-front price parity," said Corey Cantor, senior associate for EVs at BNEF.

Critics accused the EPA of overestimating the long-term benefits while overlooking higher short-term costs that may encourage Americans to hold on to older vehicles longer.

"Any claims that the EPA makes that restricting the choices of vehicles that people are allowed to buy will save money are ridiculous," said Myron Ebell with the Competitive Enterprise Institute. "They count only dubious, speculative and far-in-the-future benefits — for example, to the climate — and ignore the immediate and real costs of higher-priced vehicles."

Some electric-vehicle manufacturers and environmentalists had encouraged the administration to embrace more aggressive targets and extend requirements through 2035. That's when many analysts say the sale of conventional gas-powered cars must end in order to hit mid-century net-zero emissions goals, as the vehicles will remain on roads long after they're driven off the sales lot.

The proposal's headline targets represent "realistic goals," said Rivian Automotive Inc.'s senior director of environmental policy, Chris Nevers. Rivian "will continue to make the case for the strongest possible standards through our products and our advocacy."

The requirements hit close to home for Liz Hurtado, an activist who co-leads EcoMadres, a program at Moms Clean Air Force aimed at protecting Latino children and families from air pollution and climate change. Hurtado is set to speak at an EPA event formally unveiling the proposal Wednesday.

Tailpipe pollution disproportionately impacts people of color, and "for far too long, we've tolerated environmental injustices in this arena," Hurtado said. "Today, we set a new standard for health equity as we advance solutions to the climate crisis."

E&E NEWS: EPA releases 'strongest-ever' carbon rules for cars
Jean Chemnick, 4/12/2023

CLIMATEWIRE | EPA will propose tailpipe emissions rules Wednesday that could exponentially increase the number of electric vehicles on the nation's roads within a decade.

The regulations to reduce smog, soot and climate pollution from cars and trucks aim to make up to 67 percent of new cars sold in the U.S. carbon-free by 2032, agency officials said Tuesday, outlining a plan that could plunge the country into a transformative era in which gasoline-powered vehicles are largely replaced by cars that are refueled with an electric cord.

The rules, to be released Wednesday morning, promise to ignite political battles ahead of President Joe Biden's reelection campaign and court challenges over the federal government's power to lower carbon emissions from fossil fuels. The plan would also electrify roughly 46 percent of new medium-duty vehicles, such as landscaping and delivery trucks, by 2032.

A separate proposal for heavy-duty trucks would transform between 25 and 50 percent of large rigs into EVs, depending on the subcategory. It will also be released Wednesday.

EPA Administrator Michael Regan told reporters on a Tuesday call that the rules for model years 2027 to 2032 would be "the strongest-ever federal pollution standards for cars and trucks."

"Together, these actions will accelerate the ongoing transition to a clean vehicles future, tackle the climate crisis and improve our air quality for communities across the country," he said.

E&E NEWS: EPA tailpipe proposal puts pedal to metal for electric cars
Jean Chemnick, 4/12/2023

CLIMATEWIRE | EPA will propose tailpipe emissions rules Wednesday that could exponentially increase the number of electric vehicles on the nation's roads within a decade.

The proposed regulations would limit smog, soot and carbon from cars and trucks starting with model year (MY) 2027. While widespread electrification wouldn't be mandated, EPA projects that 67 percent of new light-duty vehicles and 46 percent of medium-duty vehicles would be electric by the time the rule is fully implemented in MY 2032.

That's a far cry from the 5.8 percent of new car sales that were electric in 2022.
The rules, to be released this morning, promise to ignite political battles ahead of President Joe Biden's reelection campaign and court challenges over the federal government's power to lower carbon emissions from fossil fuels.

Biden entered office with the goal of making the U.S. vehicle fleet 50 percent zero-carbon by 2030, enshrining it in an August 2021 executive order. EPA's proposed rule aims to blow past that target only two years later.

White House climate adviser Ali Zaidi said Tuesday that "self-proclaimed car guy" Biden pushed the U.S. into the electric transportation era, after the country had lagged behind other major industrialized countries for years.

"What you see over the last two years — it's sort of unavoidable conclusion — is that President Biden's leadership has reshaped the trend lines," Zaidi said on a call with reporters.
The 2021 infrastructure law, which Congress passed with bipartisan support, included a substantial investment in the nation's electric charging network. And last year's Inflation Reduction Act included a range of incentives for both consumers and manufacturers that are expected to spur demand and domestic supply of electric vehicles and their components.

"We have reestablished the United States as a leader in the clean transportation future," Zaidi said. "Technologies pioneered here are once again being manufactured on factory floors across the United States."

The two laws also allowed EPA to write stronger rules than it would have otherwise, according to an EPA official who spoke on background on Tuesday's call.

EPA is proposing two rules Wednesday. The first, for light- and medium-duty vehicles, would set emissions limits for carbon dioxide and other tailpipe pollution for model years 2027 through 2032. EPA will take public comment on it for 60 days and is expected to issue a final rule in early 2024.

The second regulates heavy-duty trucks like delivery vans and short- and long-haul tractors. EPA will be accepting comments on it for 50 days ahead of a final rule later this year.

While the agency has highlighted the draft rules' likely effects on EV uptake, the Clean Air Act directs EPA to set grams-per-mile emissions limits for different pollutants and leave it up to the automakers to determine how to comply.

"These standards are technology-neutral," EPA Administrator Michael Regan told reporters. "The automakers have strategies — and now have technologies and an infrastructure and a supply chain — to be able to achieve this with the lead time they've got."

EPA declined to say Tuesday what it would set for the grams-per-mile limits. But experts briefed on the rules said EPA would propose an 82-grams-per-mile carbon standard for light-duty vehicles by MY 2032, with separate limits for nitrogen oxides and other pollutants.
EPA has asked for public comment on three alternative proposals. A stronger option would set a 72-grams-per-mile carbon limit for light-duty vehicles — a level EPA said was consistent with EVs making up 69 percent of car sales for MY 2032. A weaker proposal would set a 92 gram-per-mile limit that corresponds to 64 percent of newly sold cars being electric.

EPA has also asked for comment on an alternative that would allow manufacturers more time to comply with the toughest emissions standards. That alternative would end up roughly in the same place as the agency's preferred option, with EVs making up 68 percent of new car sales in 2032 and a carbon standard of 82 grams per mile. EPA's preferred proposal front-loads emissions cuts to deploy low-carbon vehicles more quickly.

Attractive economics
Chet France, a former EPA official who now consults for the Environmental Defense Fund, said on an EDF briefing Tuesday that car companies could opt to meet a share of their compliance obligations through design changes to the internal combustion engine of gasoline-fueled vehicles, hybrids or even fuel cells.

"But it shouldn't be a surprise to anybody that battery electric vehicles are rising to the top," he said. "The economics are very attractive even without [EPA standards]."

In fact, an analysis by the International Council on Clean Transportation (ICCT) found that the Inflation Reduction Act's investments alone could lead to the sales share of EVs reaching 67 percent by 2032.
"That's what EPA has to work with," said Stephanie Searle of ICCT. "That's what could happen without EPA's standard."

The think tank estimated that the climate law would also lead to electric heavy-duty vehicles making up between 44 percent and 52 percent of new sales by 2032. That compares to EPA's own projection of 50 percent when its rule is fully implemented, also accounting for Inflation Reduction Act programs.
Some green groups say that shows that EPA's proposals are leaving carbon-cutting opportunities on the table.

Gasoline-powered vehicles are the nation's top contributor to climate change, responsible for almost 30 percent of U.S. carbon emissions.

Regan cast Wednesday's rule as an answer to global climate scientists' call to action last month in a synthesis report that showed drastic action was needed to reach the Paris Agreement's target of limiting warming to 1.5 degrees Celsius.

"Folks, as the Intergovernmental Panel on Climate Change recently alerted us yet again, the stakes could not be higher," Regan said Tuesday. "We must continue to act with haste and ambition to confront the climate crisis."

But another analysis by ICCT finds that EVs would need to make up 75 percent of new vehicles in 2030 to be consistent with the less ambitious Paris goal of stopping warming at "well below 2 degrees C." That is far above the EPA rule's target of 67 percent by 2032.

It would also mean a tailpipe emissions standard of 57 grams per mile of CO2, not the 82 grams per mile EPA is proposing or even its more ambitious alternative of 72 g/mile.

Anything short of that, ICCT writes, would "risk the U.S. falling off the path to meeting the Paris Climate Agreement goals of limiting global warming to well below 2 degrees Celsius."

Detroit News: EPA unveiling 'strongest ever' auto emissions standards in EV push
Breana Noble, Riley Beggin 4/12/2023

The Biden administration on Wednesday is unveiling the "strongest ever" tailpipe emissions standards that are expected to push automakers to accelerate the proportion of electric vehicles in their U.S. sales to 67% by 2032.

The proposed rules by the Environmental Protection Agency, which govern greenhouse gas emissions and other pollutants from light-duty vehicles such as cars, trucks and SUVs, call for a 56% reduction for the applicable model years 2027 to 2032. The EPA projects that by 2055, the rules would remove nearly 10 billion tons of carbon emissions — equal

to twice the total U.S. carbon emissions in 2022 — reducing fine particulate matter in the air that can have negative health effects and potentially saving up to $1.6 trillion.

EPA Administrator Michael Regan, in a virtual briefing ahead of a news conference on Wednesday morning in Washington, D.C., called the targets, which will undergo a public comment period before being finalized, "ambitious." In August 2021, President Joe Biden had set a goal for half of new U.S. vehicle sales to be all-electric by 2030. Now, the new standard suggests EV penetration would be at 60% by 2030 to meet the proposed standards.

"The stakes could not be higher," Regan said. "We must continue to act with haste and ambition to confront the climate crisis and to leave all our children, like my 9-year-old son, Matthew, a healthier and safer world. By doing so, we will secure America's global competitiveness and deliver economic benefits for all."

EVs represented 5.8% of U.S. sales in 2022, according to AutoForecast Solutions LLC, which expects that to jump to 8.8% this year. But even by 2032, the market forecast firm is unsure adoption will reach 45%. Other analysts' predictions also fall below the EPA's proposed 67%.

"The growth in EVs will slow down," said Sam Fiorani, the firm's vice president of global vehicle forecasting. "EVs are not ready to replace ICEs 100%."

Although the EPA emphasized EVs, the rules themselves are "technology-neutral," said Ali Zaidi, the White House's national climate adviser. That would allow for the inclusion of alternative propulsion technology such as hydrogen fuel cells.

Building off rules released in December 2021 for model years 2023 to 2026, the fleetwide light-duty standard would be at 82 grams per mile for model year 2032, down from a fleetwide 161 grams per mile by 2026, an equivalent of 40 mpg industry-wide. Other proposed alternatives put the standard at 72 grams and 92 grams per mile. A third has a more aggressive adoption early on during the period to get to the 82 grams per mile goal.

Zaidi, during the briefing, emphasized that legislation has "reshaped the trend lines." Those measures include the Bipartisan Infrastructure Law funding 500,000 electric vehicle charging stations by 2030 and the Inflation Reduction Act that incentivizes EV purchases and investment for their assembly, parts manufacturing and material sourcing in North America. The Biden administration expects capacity for the assembly of 13 million EVs by 2030.

"Time and time again, I think folks have bet against the ingenuity of American workers and American industry to continue to deliver products that will help us lead the world in the clean energy economy," Zaidi said. "I think they, frankly, lag the physical reality that we're seeing be built up based on private investment that's going into the system."

He noted the role of economic development in the move to zero-emission vehicles and said it should "lift up our communities and strengthen our workers, be shoulder to shoulder with them, as they organize for rights and benefits." At least one automaker applauded the proposal. Chris Nevers, senior director of environmental policy at Rivian Automotive Inc., said in a statement that the EV startup will urge for the strongest possible standards.

"The vehicle emissions standards proposed today," he said, "are a critical addition to the administration's climate portfolio, and we applaud the realistic goals set forward in the headline targets."

Biden's 2021 rules reversed a standard put in place by former President Donald Trump's administration by boosting requirements by 25%. The rules were also 5% higher than a proposal Biden's EPA had made that summer.

The new proposal likely won't be without its hurdles. Texas, joined by 15 other states, last month challenged the EPA's regulatory rollbacks of the Trump administration rules.

The proposal released Wednesday won't ban gas car sales — the administration has supported California's authority to set its own emissions standards but has not said it would support a federal policy similar to that of California's state policy that will ban new gas-powered car sales by 2035. It, however, has set a goal to reduce the nation's greenhouse gas emissions by 50% from 2005 levels by 2030 in accordance with the Paris Agreement that is seeking to limit the rise in average global temperature to under 2.7 degrees Fahrenheit (1.5 degrees Celsius).

Because the transportation industry represents the largest amount of carbon emissions in the country, Margo Oge, former head of EPA's Office of Transportation and Air Quality, who now advises nonprofits and manufacturers on zero-emission transportation, said during a webinar, "these regulations will reflect, in my view, the single most important regulatory initiative by the Biden administration to combat climate change and to really reduce the worst outcomes of climate change."

Automakers typically start developing vehicles three to six years in advance and have shared targets to end the sale of gas-powered vehicles. General Motors Co.'s aspiration date is by 2035. The goal for the U.S. is included in Jeep maker Stellantis NV's 2038 carbon net-zero ambition. Ford Motor Co. has pledged to end the sale globally of ICE vehicles by 2040.

Chester France, the EPA's former Assessment and Standards Division director responsible for the development of national vehicle emission standards who now is a consultant to the Environmental Defense Fund, said he is optimistic that the industry will meet and even exceed expectations. The question for the regulators is what the trajectory of adoption will look like, which will be a part of the conversation with stakeholders during public comments, Regan said.

"The regulatory policy," France said during a webinar, "has a role in providing that certainty, providing that market signal to make sure that all these things fit together."

The Alliance for Automotive Innovation, which represents most major automakers selling vehicles in the United States, released a memo last week noting that car companies are invested in the EV transition.
Automakers will have spent $1.2 trillion on vehicle electrification by 2030, the group said, and multiple manufacturers have set goals to be EV-only by 2040. But the group argued that requiring automakers to spend more on reducing emissions from gas-powered cars may slow progress toward that goal.
"Every dollar invested in internal combustion technology is a dollar not spent on zero carbon technology," the Alliance wrote. "Requiring large investments for incremental gains from gas-powered engines come at the expense of where our collective focus ought to be: electrification."

Environmental groups such as the Center for Biological Diversity have argued the administration should adopt the most stringent regulations possible: Ones that would reduce carbon dioxide pollution by at least 75% by 2030, including by requiring pollution reductions from gas-powered cars.

"Biden needs to set standards that force the industry to do what they won't do otherwise," the group wrote in an opinion piece published Friday. "Rapidly ratchet up sales of EVs, hold the line on polluting crossover SUVs and clean up the millions of new gas-powered vehicles they'll sell in the meantime."

The EPA rules also offer standards for medium-duty vehicles as well as heavy-duty trucks like commercial delivery vans and semis. It forecast that medium-duty EV penetration could reach 46% by 2032.

The proposal originally had been expected to be announced in Detroit. The EPA cited a scheduling conflict for the move in location to the nation's capital, according to The New York Times.

EPA's rulemaking is expected to be followed by a separate rule from the National Highway Traffic Safety Administration later this year governing vehicles' miles-per-gallon efficiency. Those rules are known as Corporate Average Fuel Economy, or CAFE, standards.

Detroit Free Press: EPA says electric vehicle sales will be fueled by tough pollution standards
Todd Spangler, 4/12/2023

President Joe Biden's administration on Wednesday proposed historically tougher greenhouse gas emission standards for cars and trucks sold in the U.S. that it says could lead to electric vehicles accounting for as much as 67% of all new sales in less than a decade.

If that comes to pass, it would signal a remarkable transition in the American automobile market, given that electric vehicles accounted for about 6% of new sales last year, though that was a substantial increase. Polls have shown many consumers are not sold on making the switch, with concerns about range and the upfront cost of electric vehicles much more than many gasoline-powered models.

But Biden administration officials said if automakers embrace electric vehicles as the key way toward the future — and many already have, with General Motors, for example, aspiring to be "all-electric" by 2035 — they project that under the newly proposed standards those cars and trucks could account for 67% of new light-duty vehicle sales and 46% of new medium-duty vehicle sales in model year 2032.

That change, they said, is also being driven by states, led by California, looking for all new vehicles to emit zero greenhouse gases by 2035; worldwide efforts to battle climate change; and Biden's own initiatives, including those to encourage consumers to buy electric vehicles and spur domestic battery production and the installation of hundreds of thousands of charging stations.

"It's not simple, it's not easy," Margo Oge, former head of EPA's Office of Transportation and Air Quality, said of the potential for electric vehicles sales to top 60% of the market by the 2030s. "But is it doable? Yes it is."

Speaking at an event in Washington, Environmental Protection Agency Administrator Michael Regan announced the new standards, which would take effect in 2027, saying the federal government isn't requiring automakers to adopt electric vehicles but indicating that is one preferred path. With large investments and additional incentives in place, Regan said of the historically tough standards, "I believe we can (achieve that level of electric vehicles sales) and I believe that because we're following the market trends."

"This is the future," he said.

Detroit automakers were generally noncommittal but said they would review the proposals and work with the administration. Matt Ybarra, General Motors' senior manager of public policy communications, said while GM backs towards achieving an "all-electric future," more investment in manufacturing and charging stations is needed. Ford, meanwhile, said it would "continue to work with the EPA and other stakeholders to set standards that are good for our customers and communities, the auto industry and the environment."

Eric Mayne, a spokesman for Stellantis, owner of Jeep, Ram, Chrysler, Dodge and Fiat, said the company, while committed to reducing vehicle emissions, was "surprised that none of the alternatives align with the president's previously announced target of 50% EVs by 2030." Stellantis CEO Carlos Tavares in the past has urged governments to adopt a more flexible approach than mandating electric vehicles, noting the upfront cost of those vehicles.

John Bozzella, head of the Alliance for Auto Innovation, which includes most major vehicle makers, said even with the investments the companies have made the proposed plan "is aggressive by any measure."

Less than two years ago, Biden himself set a target of 50% of all new vehicle sales in the nation being zero-emission. But the new proposal suggests the changeover could come even more quickly, while recognizing that "tens of millions" of gasoline-powered vehicles will remain in use well into the 2030s.

In a call with reporters Tuesday, Regan and White House National Climate Advisor Ali Zaidi revealed the broad outlines of the proposal, which looks to continue cutting greenhouse gas emissions from transportation sources substantially. For instance, the adjusted fleetwide target for light-duty cars and trucks in model year 2026 of 186 grams of carbon dioxide emitted per mile would be reduced by more than half, to 82 grams per mile fleetwide, by 2032, a reduction of

56%. New standards proposed for medium-duty vehicles like school buses and box trucks would see a 44% reduction compared to model year 2026 standards. The rules also look to cut emissions from heavy-duty trucks as well.

If reductions at the same level continued through 2055, the administration said, it would result in keeping 7.3 billion tons of carbon dioxide from entering the air, "equivalent to eliminating all greenhouse gas emissions from the entire U.S. transportation sector for four years."

"These ambitious standards are readily achievable," Regan said, touting the benefits to public health and in battling climate change by reducing pollution and arguing that by reducing fuel and maintenance costs, the average consumer could save $12,000 over the lifespan of a light-duty vehicle not subject to the proposed standards.

Albert Gore, executive director of the Zero Emission Transportation Association, a trade coalition advocating for policies to promote electric vehicle sales, called the standards and the goal of higher EV sales "eminently achievable" and ones that could "create millions of advanced manufacturing jobs across the country."

Fred Krupp, head of the Environmental Defense Fund, said with the introduction of the proposal on Wednesday, "America accelerated toward a clean transportation future and more jobs."

They will still cause controversy: Oil companies are vehemently opposed to such a program and Republicans in Congress have complained in the past that Biden and the environmental community are trying to force the public to embrace more expensive electric vehicles against their will.

On Wednesday morning, Mike Sommers, president and CEO of the American Petroleum Institute, a trade group representing oil and natural gas producers, issued a statement saying, "This deeply flawed proposal is a major step toward a ban on the vehicles Americans rely on. As proposed, this rule will hurt consumers with higher costs and greater reliance on unstable foreign supply chains."

"The Biden administration's new rules will all but force Americans to buy electric cars," said U.S. Rep. John Moolenaar, R-Caledonia. "This is wrong. We need competition and policies that let Americans choose the vehicles that best meet their needs."

Not all environmentalists were pleased either. Dan Becker, an advocate for more environmentally friendly cars and director of the Washington-based Center for Biological Diversity's Safe Climate Transport Campaign, said the proposal doesn't go nearly far enough, falling "well short of the 75% pollution cut necessary to protect our planet." According to a chart in the EPA documents, the proposed standards would cut carbon dioxide emissions overall by about 8% compared to taking no action by 2032, though it would go up to 47% if continued through 2055.

U.S. Rep. Debbie Dingell, D-Ann Arbor, who has been an instrumental conduit between automakers, the UAW and the Biden administration, didn't offer unequivocal support either, saying any transition to EVs needs to take into account that they generally take fewer workers to assemble. "We know that to meet our climate goals we need to reduce greenhouse gas emissions," she said. "But in doing so, we must not leave behind the working men and women who have built their lives and careers in the auto industry."

The UAW responded to the proposal saying the EV industry should be "entirely unionized."

"People who build cars for a living don't do it because we're passionate about combustion engines or electric vehicles," the statement said. "We do it because we're passionate about our families and our communities." Biden has also said that union workers need to be heavily involved in the making of electric cars and trucks.

While automakers have clearly moved toward investing heavily in electric vehicles, they have also indicated that achieving sales like those projected by the EPA require massive changes in terms of production, supplies of critical minerals for batteries and available charging stations for consumers. Last week, the Alliance for Automotive Innovation, issued a memo ahead of Wednesday's announcement saying that while EV sales continue to increase this year, "This requires a massive, 100-year change to the U.S. industrial base and the way Americans drive."

Genevieve Cullen, president of the Electric Drive Transportation Association, a group that includes automakers and utilities and promotes electrification of the automobile industry, said it's going to take "the entire portfolio of policy tools, such as consumer incentives, regulatory frameworks and manufacturing programs" to achieve the goal.

"We are with the administration in terms of moving aggressively toward electrification. This is certainly aggressive," she said.

Ultimately, both the final rule adopted by EPA, which is likely to come next year, and that proposed by the National Highway Traffic Safety Administration (NHTSA) will determine fuel standards. But those are not the only agencies involved: The Energy Department this week announced it was altering the way in which it calculates a "petroleum-

equivalent" factor for EVs compared to gasoline-powered vehicles, saying under the longstanding current program EVs are rated more efficient than they really are. That allows manufacturers to count that inflated mileage against their less-efficient vehicles when determining if they meet fleetwide emissions and fuel economy standards.
EPA officials argue that ultimately, a vast change in the number of EVs sold is entirely possible, saying enough investment is flooding into battery production to make enough to produce 13 million EVs by 2030, which would be more than half the new vehicles sold.
Unlike in past proposals, the EPA didn't provide an estimate of what the targeted reductions would translate to in terms of miles per gallon of gasoline consumed fleetwide. But with the current model year 2026 target set at 49 mpg for light-duty cars and trucks, it would have to translate into a sizeable increase. The proposal says that by 2032, it would likely cost manufacturers more than $1,000 per vehicle across the light-duty fleet to produce vehicles that could hit the target. EPA officials said reduced fuel costs, repair costs and maintenance would more than offset that.
The proposal, which provides two months for the EPA to receive comments on its plan, also includes alternatives for consideration, including one that is more stringent and a second that is less so. A third would also cut emissions by 56% in 2032 compared to 2026 but would do so with less stringent reductions in the first years and more stringent ones beyond that.
As in past emission standards proposals, the proposed rule didn't dictate what technology automakers use to hit the targets, but they predicted, given the state of the industry, they would result in wider use of filters and other means to reduce carbon dioxide emissions from gasoline-powered engines and likely "accelerate the transition to electric vehicles."
Zaidi said changes already adopted by automakers, with dozens of new electric models set to come on the market, and huge investments in domestic battery production, like that announced by Ford in Marshall, as well as government programs to provide up to $7,500 in incentives to buyers of some vehicles and spur the creation of vehicle charging stations nationwide, makes the changeover to electric vehicles possible.
For instance, Walmart this week announced plans to install charging stations at thousands of its locations nationwide.
"If you think about where we were just a little over two years ago," he said, "the number of (electric) models has doubled, the number of charging stations has doubled and the number of EVs (electric vehicles) deployed on our roads has tripled... Over $120 billion in private capital (is) coming off the sidelines and into our capacity to create American-made electric vehicle and battery supply chains here in the United States."

CNBC: EPA proposes auto pollution limits to aggressively boost electric vehicle sales
Emma Newburger, 4/12/2023

The U.S. Environmental Protection Agency on Wednesday proposed new tailpipe emissions limits that could require as much as 67% of all new vehicles sold in the U.S. by 2032 to be all-electric, representing the country's most aggressive climate regulations to date.

The proposed limits would surpass President Joe Biden's previous commitment to have EVs make up roughly 50% of cars sold by 2030 and accelerate the country's clean energy transition. The limits would also substantially reduce climate-changing emissions from the transportation sector, the largest source of U.S. greenhouse gases.

Despite a rise in EV sales in the U.S. in recent years, EV sales accounted for only 5.8% of all the 13.8 million new vehicles sold in the country last year, an increase from 3.1% the year before, according to data from the Kelley Blue Book. The U.S. is the world's third-largest market for EVs behind China and Europe.

The limits wouldn't require a specific amount of annual EV sales but rather set pollution standards for cars and trucks, which would force the auto industry to sell a lot more EVs in order to meet the requirements. The agency projects the standards would avoid nearly 10 billion tons of carbon emissions through 2055, equivalent to more than twice the total U.S. carbon emissions in 2022.

EPA Administrator Michael Regan is set to announce the proposed limits later today at the agency headquarters in Washington. The limits will be made available for public review and comment and will likely face legal challenges.

"This is a very ambitious proposal," Regan said during a briefing with reporters on Tuesday. "This proposal solicits a number of ways to achieve these goals and we plan to strategically engage all our stakeholders."

Urgently replacing gas-burning vehicles with all-electric models would help the Biden administration achieve its commitment to reducing U.S. greenhouse gas emissions by at least 50% by the end of the decade and reach net-zero emissions by 2050.
Depending on the compliance pathways manufacturers select to meet the standards, the EPA said, it projects that EVs could account for 67% of new light-duty vehicle sales and 46% of new medium-duty vehicle sales in model year 2032.

However, the proposed limits would present a slew of challenges for automakers.

Auto companies are already investing billions in factories and battery technology to support EVs. But a rapid adoption of EV technology would require more widespread and reliable charging infrastructure and more materials necessary for EV batteries, among other things.

John Bozzella, CEO of the Alliance for Automotive Innovation, a trade association that represents major automakers, said in a statement that the EPA's proposed regulation "is aggressive by any measure" and sets "very high" automotive electrification goals over the next few years.

The group has said that charging stations need to become more reliable and ubiquitous, EVs must become more affordable and domestic critical mineral supply chains have to be set up.

"The question isn't can this be done, it's how fast can it be done, and how fast will depend almost exclusively on having the right policies and market conditions in place to achieve the shared goal of a net zero carbon automotive future," Bozzella said.

The Biden administration's efforts to raise EV sales could also face opposition from consumers, who will ultimately need to be willing and able to buy EVs.

New electric vehicles currently cost an average of more than $58,000, according to Kelley Blue Book estimates, a price that's well above the industry average of just under $46,000.

Under the Inflation Reduction Act passed last year, tax credits provide a purchase incentive of up to $7,500 for car buyers in order to boost EV adoption and affordability. However, starting April 18, new Treasury Department requirements will result in fewer new EVs that will be eligible for the full tax credit.

Environmental groups praised the EPA's limits as necessary to addressing climate change and mitigating air pollution, especially for marginalized communities that live near major highways.
"Every single day, millions of Americans are forced to breathe deadly vehicle pollution spewed from combustion vehicles on the road," Sierra Club Executive Director Ben Jealous said in a statement. "Strong federal action to address this devastating reality is a must."

A poll this week found that nearly half of Americans say it's unlikely they would purchase an EV as their next car, citing the lack of charging options and the high costs as primary barriers to going electric. And just 35% of respondents support setting stricter auto emissions rules to encourage automakers to boost EV sales.

The Biden administration earlier this year set a goal to put at least 500,000 EV charging stations on U.S. roads by 2030 and announced a slate of initiatives to help make that a reality, including commitments from companies that build and operate charging networks, such as Tesla, General Motors, Fordand ChargePoint. Still, experts say that millions of electric vehicle charging stations are needed.

The White House has also set aside $5 billion from the 2021 bipartisan infrastructure package to help states build a network of EV charging stations along designated alternative fuel corridors on the national highway system.

The Hill: Two-thirds of car sales could be electric by 2032 under new Biden proposal
Rachel Frazin, 4/12/2023

Two-thirds of new car sales could be electric by 2032 under a new proposal released by the Biden administration on Wednesday.

The Environmental Protection Agency (EPA) projects that 67 percent of new light-duty passenger cars sold in the U.S. could be electric that year under its new proposed clean car regulations.

For medium-duty vehicles, the share of news sales that are electric could be 46 percent.

The agency is not mandating this level of electric vehicle sales. Instead, it's proposing to require that automakers limit the greenhouse gas emissions coming from their fleets – which could be done by making more of their vehicles electric or by upgrading the gasoline-powered engines in their cars.
Wednesday's proposed limits, for model years 2027 through 2032, would be tighter than the limitations that the Biden administration put forward for previous model years.

The administration is additionally proposing new climate regulations for heavy-duty vehicles including delivery trucks and school buses.

"This is a win for the American people," White House Climate Adviser Ali Zaidi told reporters on Tuesday. "President Biden is seizing the moment."

Zaidi added that the regulations would be bolstered by investments in electric vehicle charging that are part of the bipartisan infrastructure law.

All together, the proposals would cut 10 billion tons of carbon dioxide emissions through 2055, said the EPA press release. The avoided emissions would be equivalent to more than twice the U.S.'s total carbon dioxide emissions last year.

Biden, in the past, said he hoped that half of new U.S. vehicle sales would be electric by 2030. The EPA's regulations could be charting an even more ambitious course: electric vehicles would be projected to compose 55 percent of newmodel year 2029 and 60 percent of new model year 2030 sales.

In addition to limiting the climate-warming gases, the agency is also proposing to target other pollutants coming from these vehicles that form soot and smog and can be harmful to peoples' health.

Jeff Alson, a former engineer and policy advisor at the EPA, told The Hill that in addition to ratcheting up the standards for greenhouse gas emissions that vehicles had to make, the proposal would also subject more types of trucks to the light and medium-duty standards and level the playing field between lighter and heavier cars that are subject to the limits.

EPA Administrator Michael Regan described the regulations as the "strongest ever" federal pollution standards for cars and trucks on a call with reporters.
A trade group representing major automakers questioned whether the new proposed limits were feasible.

"Are EPA's new standards feasible? Will they accelerate the EV transformation? It depends," said a blog post from president and CEO of the Alliance for Automotive Innovation John Bozzella.
"Factors outside the vehicle, like charging infrastructure, supply chains, grid resiliency, the availability of low carbon fuels and critical minerals will determine whether EPA standards at these levels are achievable," Bozzella added.

The proposal was also met with some Republican pushback, as the GOP argued that the proposal would limit consumer choice.

"Today, the Biden administration made clear it wants to decide for Americans what kinds of cars and trucks we are allowed to buy, lease, and drive," said a written statement from Sen. Shelley Moore Capito (R-W.Va.), also citing the high prices of electric cars.

Meanwhile, as environmental groups largely praised the standards for light- and medium-duty vehicles, some said that the agency should have been more ambitious in its proposal for heavy-duty trucks.

"The proposed heavy-duty rules are significant, but the market for electric trucks is moving quickly and there is both an urgent need and an opportunity to go even further to facilitate the transition to electric trucks with no tailpipe pollution," said a statement from Dave Cooke, senior vehicles analyst with the Union of Concerned Scientists.

Wired: You May Get More EV Options Thanks to Tougher Emissions Rules
Aarian Marshall 4/12/2023

AUTOMAKERS HAVE MADE plenty of promises about electric vehicles. General Motors, Ford, and Volvo—some of the more ambitious—have pledged to sell only zero-emission cars by at least 2035. That's quite a commitment, as only 14 percent of new cars sold globally last year were electric, with the share in the US being half that.
But a new proposal released by the US Environmental Protection Agency today threatens to hold automakers to their electric big talk—and to up the ante. The agency suggested tighter emissions standards that it calculates would require electric vehicles to make up two-thirds of new passenger vehicle sales by 2032, sending millions more EVs onto dealership lots. It also wants to toughen standards for heavy trucks, albeit less aggressively.
During a media briefing Wednesday, EPA administrator Michael Regan called the proposals, which would kick in in 2027, the "strongest-ever federal pollution standards for cars and trucks." If enacted, the rules could prevent the release of almost 10 billion tons of carbon dioxide through 2055.

The new pollution rules would operate by forcing automakers to ensure that each year between 2027 and 2032, the total emissions of all the vehicles they sell gets smaller. To meet those shrinking targets without slashing sales, manufacturers would have to offer a greener slate of vehicles. That could mean boosting fuel economy, offering more hybrids, or launching more cars powered by hydrogen or batteries. Consumers' booming appetite for EVs, and the more than trillion dollarsthat automakers have earmarked for electrification, suggests that building more battery-powered cars may be the industry's easiest path to cutting emissions.

The proposals could become one of the Biden administration's most significant moves towards reducing air pollution and decarbonizing the US transportation system, which is alone responsible for more than a quarter of the nation's greenhouse gas emissions.

Two years ago, a bipartisan infrastructure deal poured $7.5 billion into building a nationwide EV charging network, so that drivers powered by plug might one day roam without fear of running out of power. Just last summer, the Inflation Reduction Act created new incentives for businesses thinking of electrifying their own fleets of cars and trucks, and launched new tax credits rewarding companies that manufacture batteries and electric cars in the US.

Automakers have complained that those new rules make it hard to build EVs that qualify for tax credits right now. But they have spurred new mining, battery building, and manufacturing projects in the US, the seedlings, the White House hopes, of a global car industry driven by the US and not China.

Dave Cooke, a senior vehicles analyst with the Union of Concerned Scientists, says the EPA's proposal builds on those previous policies to make clear what is expected of automakers as the US tries to curtail carbon emissions. "We've given them the carrot," he says. "Now here's the stick."

What does that mean for drivers? If the EPA's tough new rules take effect, Americans should see many more affordable electric vehicles in dealership lots in the next decade.

There are already an unprecedented 91 electric models available for sale in the US today and 60 more coming by 2026, according to auto industry group the Alliance for Automotive Innovation. But the proposed EPA rules put serious pressure on manufacturers to produce more, during a decade in which decisive action will be crucial to hitting most of the companies' lofty 2035 emissions pledges, says Chris Harto, a senior energy policy analyst with the nonprofit consumer organization Consumer Reports.
Conveniently, there's evidence that drivers would like to see a greater variety of EVs to choose from, Harto says. "Consumers want the vehicles, and automakers aren't delivering them," Harto says.

Consumer Reports' 2022 survey of US consumers found that 71 percent of adults have at least some interest in owning an electric vehicle, a 350 percent increase in interest since 2020.

Many electric vehicles, including Ford's Lightning pickup, Audi's e-tron line, and Rivian's R1T electric truck, have waiting lists that stretch from weeks to years. Amidst the supply crunch and demand crush, EVs sold through dealerships have been marked up by thousands of dollars. The average EV is still more expensive to buy than its gas-powered counterpart, though some auto industry experts predict they could reach cost parity by the end of the year.
Less certain is whether the US is ready to deliver and support a rush of new EVs. Supply chains, especially for critical battery minerals that may prove difficult to mine outside of China, will need more capacity. And even as the Feds hand out money for charging infrastructure, there are plenty of challenges to be worked through before there are enough public chargers to support long-haul driving and enable people without a private garage to charge up. In many places, the electrical grid will need upgrading or adjusting if it is to power millions of cars.

Electrification "requires a massive, 100-year change to the US industrial base and the way Americans drive," the Alliance for Automotive Innovation, the industry group, wrote in a memo earlier this month that struck a skeptical tone on the prospect of tighter EPA rules. The group did not immediately respond to a request for comment on the proposed pollution rules.

The agency's proposal will now be subject to months of public hearings and debates, as environmentalists, auto lobbyists, and anyone else with a stake in one of the largest industries in the US weighs in.

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